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PASSWORD:

TERMINAL (ENTER 1, 2, 3, OR ?):2

* * * * * Welcome to STN International * * * * *

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NEWS 2 JAN 12 Match STN Content and Features to Your Information
              Needs, Quickly and Conveniently
NEWS 3 JAN 25 Annual Reload of MEDLINE database
NEWS 4 FEB 16 STN Express Maintenance Release, Version 8.4.2, Is
              Now Available for Download
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              of Author Abstracts
NEWS 6 FEB 16 New FASTA Display Formats Added to USGENE and PCTGEN
NEWS 7 FEB 16 INPADOCDB and INPAFAMDB Enriched with New Content
              and Features
NEWS 8 FEB 16 INSPEC Adding Its Own IPC codes and Author's E-mail
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NEWS 9 APR 02 CAS Registry Number Crossover Limits Increased to
              500,000 in Key STN Databases
NEWS 10 APR 02 PATDPAFULL: Application and priority number formats
              enhanced
NEWS 11 APR 02 DWPI: New display format ALLSTR available
NEWS 12 APR 02 New Thesaurus Added to Derwent Databases for Smooth
              Sailing through U.S. Patent Codes
NEWS 13 APR 02 EMBASE Adds Unique Records from MEDLINE, Expanding
              Coverage back to 1948
NEWS 14 APR 07 CA/Caplus CLASS Display Streamlined with Removal of
              Pre-IPC 8 Data Fields
NEWS 15 APR 07 50,000 World Traditional Medicine (WTM) Patents Now
              Available in Caplus
NEWS 16 APR 07 MEDLINE Coverage Is Extended Back to 1947

NEWS EXPRESS FEBRUARY 15 10 CURRENT WINDOWS VERSION IS V8.4.2,
              AND CURRENT DISCOVER FILE IS DATED 15 JANUARY 2010.

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Enter NEWS followed by the item number or name to see news on that specific topic.

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10560670.trn

***** STN Columbus *****

FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010

=> ile regf

ILE IS NOT A RECOGNIZED COMMAND

The previous command name entered was not recognized by the system.

For a list of commands available to you in the current file, enter

"HELP COMMANDS" at an arrow prompt (=>).

=> file reg

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

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Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES: 3 JUN 2010 HIGHEST RN 1226953-63-4

DICTIONARY FILE UPDATES: 3 JUN 2010 HIGHEST RN 1226953-63-4

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH January 8, 2010.

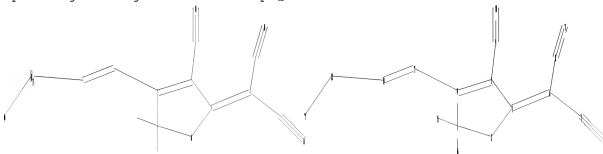
Please note that search-term pricing does apply when
conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and
predicted properties as well as tags indicating availability of
experimental property data in the original document. For information
on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stndoc/properties.html>

=>

Uploading C:\Program Files\Stnexp\Queries\10560670.str



chain nodes :

6 7 8 9 17 18

ring nodes :

1 2 3 4 5

ring/chain nodes :

10 11 12 13 14 15 16

chain bonds :

1-6 3-15 3-16 4-13 5-9 6-7 6-8 7-12 8-11 9-10 14-18 17-18

10560670.trn

ring/chain bonds :

13-14

ring bonds :

1-2 1-5 2-3 3-4 4-5

exact/norm bonds :

1-2 1-5 2-3 3-4 4-5 7-12 8-11 9-10 13-14 14-18 17-18

exact bonds :

1-6 3-15 3-16 4-13 5-9 6-7 6-8

Match level :

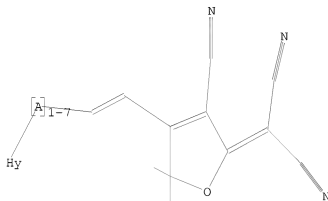
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:CLASS 7:CLASS 8:CLASS 9:CLASS
10:CLASS 11:CLASS 12:CLASS 13:CLASS 14:CLASS 15:CLASS 16:CLASS 17:Atom
18:CLASS

L1 STRUCTURE UPLOADED

=> d l1

L1 HAS NO ANSWERS

L1 STR



Structure attributes must be viewed using STN Express query preparation.

=> s l1

SAMPLE SEARCH INITIATED 14:57:54 FILE 'REGISTRY'

SAMPLE SCREEN SEARCH COMPLETED - 59 TO ITERATE

100.0% PROCESSED 59 ITERATIONS

0 ANSWERS

SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**

BATCH **COMPLETE**

PROJECTED ITERATIONS: 720 TO 1640

PROJECTED ANSWERS: 0 TO 0

L2 0 SEA SSS SAM L1

=> s l1 full

FULL SEARCH INITIATED 14:57:59 FILE 'REGISTRY'

FULL SCREEN SEARCH COMPLETED - 1014 TO ITERATE

10560670.trn

100.0% PROCESSED 1014 ITERATIONS
SEARCH TIME: 00.00.01

14 ANSWERS

L3 14 SEA SSS FUL L1

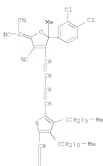
=> d scan

10560670.trn

L3 14 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 D3 Propenedinitrile, 2-[4-{4-{5-[2-{4-[bis(2-
 mercaptoethyl)amino]phenyl]ethenyl}-3,4-dihexyl-2-thienyl]-1,3-butadien-1-
 yl]-3-cyano-5-(3,4-dichlorophenyl)-5-methyl-2(5H)-furanlidene]-, polymer
 W3A
 1,2'-(2,2',3,3',5,5',6,6'-octafluoro[1,1'-biphenyl]-4,4'-diyl)bis[18-
 pyrrole-2,3-dione] and 4,4'-thiodi[benzocyclobutyl]
 MF [C47 H52 C12 N4 O S3 . C22 H4 F8 N2 O4 . C12 H12 S3]x
 CI HNC

CH 3

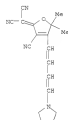
PAGE 1-A



PAGE 2-A



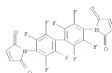
L3 14 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 D3 Propenedinitrile, 2-[3-cyano-5,5-dimethyl-4-{4-[1-pyrrolidinyl]-1,3-
 butadien-1-yl]-2(5H)-furanlidene]-
 MF C18 H28 N4 O



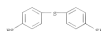
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L3 14 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

CH 2



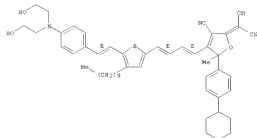
CH 3



HOW MANY MORE ANSWERS DO YOU WISH TO SCANT (1)111

L3 14 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 D3 Propenedinitrile, 2-[4-{(1E,2E)-4-{5-[(1E)-2-[4-[bis(2-
 hydroxyethyl)amino]phenyl]ethenyl]-4-decyl-2-thienyl]-1,3-butadien-1-yl]-3-
 cyano-5-(4-cyclohexylphenyl)-5-methyl-2(5H)-furanlidene]-
 MF C18 H28 N4 O3 S

Double bond geometry as shown.

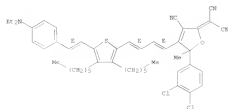


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L3 14 ANHRS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propenedinitrile,
 2-[3-cyano-5-[5,6-dichlorophenyl]-4-[(1E,3E)-4-[5-[(1E)-
 2-[4-(dimethylamino)phenyl]ethenyl]-2,4-dihexyl-2-thienyl]-1,3-butadien-3-
 yl]-5-methyl-2[(5S)-furanlidene]-
 MF C41 H52 Cl2 N4 O 3

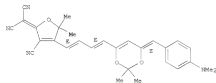
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L3 14 ANHRS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propenedinitrile, 2-[3-cyano-6-[(1E,3E)-4-[(4E)-4-[[4-(
 dimethylamino)phenyl]methylene]-2,3-dimethyl-6H-3,3-dioxin-6-yl]-1,3-
 butadien-1-yl]-5,5-dimethyl-2[(5S)-furanlidene]-
 MF C39 H23 N4 O3

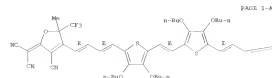
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L3 14 ANHRS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propenedinitrile, 2,2'-[(1E)-1,2-ethenediylbis[[7,4-dibutoxy-5,2-
 thiophenediyl]-[(1E,3E)-1,3-butadiene-4,1-diyl][2-cyano-5-methyl-5-
 (trifluoromethyl)-4-furanyl-2[(5S)-ylidene]]bis-
 MF C54 H52 F6 N6 O6 S2

Double bond geometry as shown.



PAGE 1-A

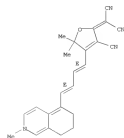


PAGE 1-B

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L3 14 ANHRS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propenedinitrile,
 2-[3-cyano-3,5-dimethyl-4-[(1E,3E)-4-[(2,6,7,8-tetrahydro-
 2-methyl-5-isoquinolinyl)-1,3-butadien-1-yl]-2[(5S)-furanlidene]-
 MF C24 H22 N4 O

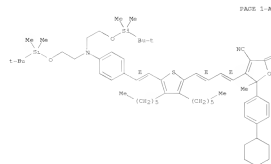
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L3 14 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Preparedimintrialle, 2-[4-[(1E,3E)-4-[5-[1(1E)-2-[4-[Bia[2-[1,1-dimethylethyl]dimethylalyl]oxy]ethyl]amino]phenyl]ethenyl]-3,4-dihexyl-2-thienyl]-1,3-butadien-1-yl]-3-cyano-5-(4-cyclohexylphenyl)-5-methyl-2(5H)-furylidene]-
 MF C45 H52 N4 O5 S S2
 Double bond geometry as shown.

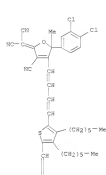


PAGE 1-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L3 14 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Preparedimintrialle, 2-[4-[(1E,3E)-4-[5-[1(1E)-2-[4-[Bia[2-mercaptoethyl]amino]phenyl]ethenyl]-3,4-dihexyl-2-thienyl]-1,3-butadien-1-yl]-3-cyano-5-(3,4-dichlorophenyl)-5-methyl-2(5H)-furylidene]-
 MF C47 H52 Cl2 N4 O5 S
 Cl COM

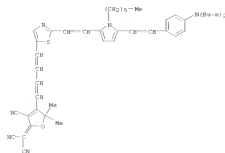


PAGE 2-A



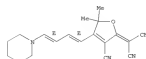
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L3 14 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Preparedimintrialle, 2-[3-cyano-4-[4-[2-[2-[5-[2-[4-[(dibutylamino)phenyl]ethenyl]-1-hexyl-1H-pyrrol-2-yl]ethenyl]-5-thiazolyl]-1,3-butadien-1-yl]-5,5-dimethyl-2(5H)-furylidene]-
 MF C45 H52 N4 O 2
 Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L3 14 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Preparedimintrialle, 2-[3-cyano-5,5-dimethyl-4-[(1E,3E)-4-[1-piperidyl]-1,3-butadien-1-yl]-2(5H)-furylidene]-
 MF C19 H20 N4 O
 Double bond geometry as shown.

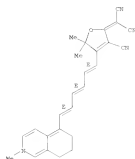


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L3 14 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 H3 Propenedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1R,2R,5R)-6-(2,6,7,8-tetrahydro-2-methyl-5-isoquinoliny)-1,3,5-benzotriaz-1-yl]-2(5H)-furan-2-ylidene]-
 MF C26 H24 N4 O

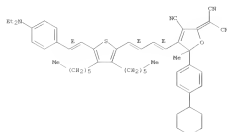
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L3 14 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 H3 Propenedinitrile,
 2-[3-cyano-5-(4-cyclohexylphenyl)-4-[(1R,2R)-4-[5-[(1R)-2-[4-(dimethylamino)phenyl]ethyl]-7,4-dihydro-2-thienyl]-3,2-dutadien-1-yl]-5-methyl-2(5H)-furan-2-ylidene]-
 MF C30 H24 N4 O 2

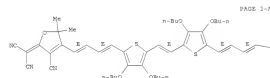
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L3 14 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 H3 Propenedinitrile, 2,2'-[[1E]-2,2-ethenediylbis[(3,4-dibutoxy-5,2-thiophenediyl)]-(1R,2E)-1,3-butadiene-4,1-diyl(3-cyano-5,5-dimethyl-4-furyl-2(5H)-pyridene)]bis-
 MF C54 H58 N6 O6 S2

Double bond geometry as shown.



PAGE 1-A



PAGE 1-B

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

ALL ANSWERS HAVE BEEN SCANNED

10560670.trn

=> file caplus

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010

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FILE COVERS 1907 - 7 Jun 2010 VOL 152 ISS 24

FILE LAST UPDATED: 6 Jun 2010 (20100606/ED)

REVISED CLASS FIELDS (/NCL) LAST RELOADED: Apr 2010

USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Apr 2010

Caplus now includes complete International Patent Classification (IPC) reclassification data for the second quarter of 2010.

CAS Information Use Policies apply and are available at:

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STRUCTURE FILE UPDATES: 3 JUN 2010 HIGHEST RN 1226953-63-4
DICTIONARY FILE UPDATES: 3 JUN 2010 HIGHEST RN 1226953-63-4

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REGISTRY includes numerically searchable data for experimental and
predicted properties as well as tags indicating availability of
experimental property data in the original document. For information
on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stdoc/properties.html>

=> tra rn l4
L5 TRANSFER L4 1- RN : 172 TERMS
L6 172 L5

=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010
STRUCTURE UPLOADED

L1

10560670.trn

FIDE - All substance data, except sequence data
IDE - FIDE, but only 50 names
SQIDE - IDE, plus sequence data
SQIDE3 - Same as SQIDE, but 3-letter amino acid codes are used
SQD - Protein sequence data, includes RN
SQD3 - Same as SQD, but 3-letter amino acid codes are used
SQN - Protein sequence name information, includes RN

EPROP - Table of experimental properties
PPROP - Table of predicted properties
PROP - EPROP, ETAG, PPROP

Any CA File format may be combined with any substance format to obtain CA references citing the substance. The substance formats must be cited first. The CA File predefined formats are:

ABS -- Abstract
APPS -- Application and Priority Information
BIB -- CA Accession Number, plus Bibliographic Data
CAN -- CA Accession Number
CBIB -- CA Accession Number, plus Bibliographic Data (compressed)
IND -- Index Data
IPC -- International Patent Classification
PATS -- PI, SO
STD -- BIB, IPC, and NCL

IABS -- ABS, indented, with text labels

10560670.trn

L2 0 S L1
L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010
L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010
L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010
L6 172 SEA L5
L7 1 S L3 NOT L6

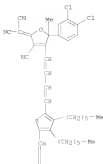
=> d 17 str cn rn ed

10560670.trn

L7 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2010 ACS on STN

L7 ANSWER 1 OF 1 REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

PAGE 1-A



PAGE 2-A



***PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

CH Propanedinitrile, 2-[4-[4-[5-[2-[4-[bis[2-

mercaptomethylamino]phenyl]ethenyl]-3,4-dihexyl-2-thienyl]-1,3-butadien-1-yl]-7-cyano-1-[1,4-dichlorophenyl]-5-methyl-2 (3H)-furanolide]- (CH

INDEX NAME)

HH 356024-92-5 REGISTRY

ED Entered STN: 27 Nov 2007

10560670.trn

=> file caplus

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010
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FILE COVERS 1907 - 7 Jun 2010 VOL 152 ISS 24
FILE LAST UPDATED: 6 Jun 2010 (20100606/ED)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Apr 2010
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Apr 2010

CPlus now includes complete International Patent Classification (IPC) reclassification data for the second quarter of 2010.

CAS Information Use Policies apply and are available at:

<http://www.cas.org/legal/infopolicy.html>

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s otophore

L8 0 OTOPHORE

=> s optophore

1 OPTOPHORE

1 OPTOPHORES

L9

1 OPTOPHORE

(OPTOPHORE OR OPTOPHORES)

=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

L1 STRUCTURE UPLOADED

L2 0 S L1

L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010

L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

10560670.trn

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010
L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010
L6 172 SEA L5
L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010
L8 0 S OTOPHORE
L9 1 S OPTOPHORE

=> s 13 and 19
11 L3
L10 0 L3 AND L9

=> s 14 or 19
L11 12 L4 OR L9

=> d cbib abs hitstr 1-
YOU HAVE REQUESTED DATA FROM 12 ANSWERS - CONTINUE? Y/(N):y

111 ANKWER 1 OF 12 CAPLUS COPYRIGHT 2010 ACS ON STM
2009/08763 Document No. 132/437904 Strategies for optimizing the
second-order nonlinear optical response in zwitterionic merocyanine dyes.
Tashiro, Akiyuki; Ray, Andrew J.; Mochizuki, Anthony J.; Chaya, Ryohei;
Asterberg, Jeroen; Smith, Gerald J. (Department of Chemistry, University of
Leuven, Leuven, B-3001, Belg.). Optical Materials (Amsterdam,
Netherlands), 31(4), 575-582 (English) 2009. CODEN: OPTLET. ISSN:
0925-3467. Publisher: Elsevier 9, 97.

AB The mol. linear and nonlinear optical (NLO) properties of a series of
seven merocyanine dyes have been studied in solvents covering a broad
range of polarity (diacene to dimethylsulfoxide). The benchmark for the
series was the "right hand side" zwitterionic chromophore 1, with a short
excitation path and pyridinium as the donor group. Optimization
strategies to improve the nonlinear response involved an extension of the
excitation path (with one or two ethynyl groups), annulation (pyridine
to

quinoline), variation of the solvent polarity and partial ring locking of
the π -conjugated system. All chromophores have as the acceptor moiety
the pyridiniumphenylidene dimethylcarbamate heterocycle. Optimizing the NLO
response of these zwitterionic dyes by decreasing the polarity of the
solvent is only possible for the parent chromophore 1. This is because
the three other carbocyclic strategies employed to further improve the
second-order NLO response in polar media, result in detrimental
aggregation in nonpolar media.

IT 122190-12-02 122190-32-1P
RI FFF (Physical, engineering or chemical process); FFF (Properties);
SPN

[Synthetic preparation]; FFF (Preparation); FFF (Process)
[Strategies for optimizing second-order nonlinear optical response in
zwitterionic merocyanine dyes]

RI 122190-12-02 CAPLUS
CI Propagandantille, 2-[3-cyano-5,5-dimethyl-4-[(1H,2H,5H)-6-(2,6,7,8-tetrahydro-
2-methyl-5-isoquinolinyl)-1,3-butanediol-1-yl]-2-(5H)-furan-2-ylidene]- (CA
INDEX NAME)

Double bond geometry as shown.

111 ANKWER 2 OF 12 CAPLUS COPYRIGHT 2010 ACS ON STM
2008/106478 Document No. 132/44501
2-[3-cyano-5,5-dimethyl-4-[(4-(pyrrolidin-1-yl)buta-1,3-dienyl)-2,5-
dihydrofuran-2-ylidene]methyl]dimethylcarbamate solvents. Gaisford,
Graeme J.; Ray, Andrew J.; Ray, Andrew J.; Robinson, Marc T.
[Industrial Research Limited, Lower Hut, N. Z.]. Acta
Crystallographica.

Section B: Structure Reports Online, B6(49), o1715 (English) 2008.
CODEN: ACRA. ISSN: 1460-5168. URL:
<http://journals.iucr.org/e/issues/2008/09/00/13664/13664.pdf>

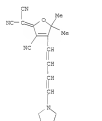
Publiser: Wiley-Blackwell.

AB The structure of the title compound, C18H18N4O2, was solved using
data collected from a multiple crystal (note high R factors). The
crystal structure is dominated by two bifurcated attractive

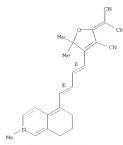
C-H...N hydrogen bonds. Crystallog. data are given.

IT 119786-02-02 119786-02-02
RI FFF (Properties); SPN (Synthetic preparation); FFF (Preparation)
[Crystal structure of]

RI 119786-02-01 CAPLUS
CI Propagandantille, 2-[3-cyano-5,5-dimethyl-4-[(4-(pyrrolidin-1-yl)-2-
butadien-1-yl]-2-(5H)-furan-2-ylidene]- (CA INDEX NAME)

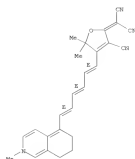


111 ANKWER 1 OF 12 CAPLUS COPYRIGHT 2010 ACS ON STM (Continued)



RI 122190-32-1 CAPLUS
CI Propagandantille, 2-[3-cyano-5,5-dimethyl-4-[(1H,2H,5H)-6-(2,6,7,8-
tetrahydro-2-methyl-5-isoquinolinyl)-1,3,5-hexatrien-1-yl]-2-(5H)-
furan-2-ylidene]- (CA INDEX NAME)

Double bond geometry as shown.



111 ANKWER 3 OF 12 CAPLUS COPYRIGHT 2010 ACS ON STM
2008/97122 Document No. 132/44702 A pattern for decreasing the first
hyperpolarizability of a push-pull polyene dye as indicated from DFT
calculations. Chaffin, Andrew J.; Lindsey, Geoffrey R. (UNIV. OF MICHIGAN,
Michigan Laboratory, Chemistry Branch, U.S. Navy, China Lake, CA, 93555,
USA). Polymer Preprints (American Chemical Society, Division of Polymer
Chemistry), 49(2), 991-992 (English) 2008. CODEN: APCPAA. ISSN:
0032-3924. Publisher: American Chemical Society, Division of Polymer
Chemistry.

AB D. functional theory (DFT) calcns. were performed on a polyene dye
scaffold, keeping the end groups and bridge length the same but varying
the pattern of electron-donating (D) and electron-withdrawing (W)
substituents along the polyene bridge. The basic pattern that increased the
first hyperpolarizability was to place W substituents on
even-numbered

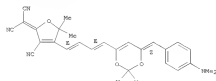
(a) methine carbons, and D substituents on odd-numbered (a) methines
(called the (a,b) pattern). The numbering scheme used herein for the
dye scaffold has the E1 methine at the W-terminus of the dye. The (a,b)
pattern polarizes the π bonds along the polyene in the opposite
direction that the terminal of the dye polarize the dye. By placing cyano
and chlorine groups in the (a,b) pattern along the polyene, a scaffold
higher first hyperpolarizability was predicted compared to placing them

on the opposite substitution pattern (a,b,b). A superimposed but weaker
gradient pattern was also observed.

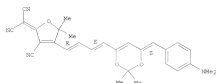
IT 107095-43-0 107095-43-0
RI FFF (Properties)
[Pattern for decreasing the first hyperpolarizability of a push-pull
polyene dye as indicated from DFT calcns.]

RI 107095-43-0 CAPLUS
CI Propagandantille, 2-[3-cyano-4-[(1H,2H)-4-[(4H)-4-[(4-
(dimethylamino)phenyl)methyl]but-1-en-1-yl]-2,5-dimethyl-4-yl]-1,3-
butadien-1-yl]-5,5-dimethyl-2-(5H)-furan-2-ylidene]- (CA INDEX NAME)

Double bond geometry as shown.

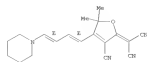


111 ANWER 4 OF 12 CAPSUS COPYRIGHT 2010 ACS on STM
2009:490216 Document No. 149:543456 A Pattern for Increasing the First Hyperpolarizability of a Push-Pull Polyene Dye as Indicated from DFT Calculations. Chaitin, Andrew P.; Lindsey, Geoffrey A. (RMCXO, RMCXO, Nicholson Laboratory, Chemistry Branch, U.S. Navy, China Lake, CA, 93555, USA). Journal of Physical Chemistry C, 112(12), 7829-7835 (English).
2008: COOBY JPCCC. ISSN: 1932-7447. Publisher: American Chemical Society.
AB 2. functional theory (DFT) calculations were performed on a polyene dye scaffold, keeping the groups and bridge length the same but varying the pattern of electron-donating (ED) and electron-withdrawing (W) substituents along the polyene backbone. The basic pattern that increased the first hyperpolarizability was to place M substituents on even-numbered
(a) methine carbons, and D substituents on odd-numbered (b) methines (called the (eMD) pattern). The numbering scheme used herein for the dye scaffold has the #1 methine at the W-terminus of the dye. The (eMD) pattern polarizes the π bonds along the polyene in the opposite direction that the termini of the dye polarize the dye. By placing cyano and fluorine groups in the (eMD) pattern along the polyene, a scaffold holder first hyperpolarizability was predicted compared to placing them gradient pattern was also observed
IT 1017016-45-1
R1 PEP (Properties)
CH Pattern for Increasing the First Hyperpolarizability of a Push-Pull Polyene Dye as Indicated from DFT Calculations.
R1 1017016-45-1 CAPSUS
CH Prepared in nitrile, 2-[3-cyano-6-[(1E,3E)-4-[[4E]-4-[[4-(dimethylamino)phenyl]ethynyl]ethynyl]-2,2-dimethyl-4H-1,3-butadien-1-yl]-1,1-dimethyl-2-[[3H]-furan]idene] (CA INDEX NAME)
Double bond geometry as shown.



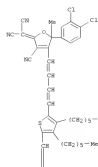
111 ANWER 6 OF 12 CAPSUS COPYRIGHT 2010 ACS on STM
2009:1271490 Document No. 147:5030570 Merceptofunctional high hyperpolarizability electrooptical chromophores and high glass temperature, low optical loss, covalently bonded, high hyperpolarizability
Electrooptical chromophore containing polymers and methods of synthesis. See, Mingqiang Wang, Jiangsu (Genting, Inc., USA). U.S. Pat. Appl. Publ. CN 2007025727 A1 20071209, 20 pp. (English). COOBY USXCCO.
APPLICATION US 2006-481201 20061003.
AB The present invention relates generally to merceptofunctional high μ ED chromophores and ED polymers, and particularly to merceptofunctional high μ ED chromophores and ED polymers useful for making electro-optical devices and systems. Merceptofunctional high μ ED chromophores are covalently bonded to poly(imido sulfide) polymers producing high T_g, low optical loss, covalently bonded, high μ ED chromophore containing polymers. Methods of synthesizing these ED materials using mild polymerization conditions are also described.
IT 916004-93-6P
R1 JMI (Industrial manufacture); PEP (Properties); TM (Technical or engineering material use); PEP (Preparation); USX (Uses) (Uses)
merceptofunctional high hyperpolarizability electrooptical chromophores and high glass temperature, low optical loss, covalently bonded,
high hyperpolarizability electrooptical chromophore containing polymers and
methods of synthesis
R1 916004-93-6 CAPSUS
CH Prepared in nitrile, 2-[4-[[5-[2-[4-[[bis(2-merceptophenylamino)phenyl]ethynyl]-3,4-dimethyl-1-thienyl]-1,3-butadien-1-yl]-2-cyano-1-[1,4,6-dimethoxyphenyl]-5-methyl-2-[[3H]-furan]idene]-1-polymer with
1,1'-[2,2'-(3,3',5,5',6,6'-octafluoro[1,1'-biphenyl]-4,4'-diyl)]bis[3H-pyrrole-2,5-dione] and 4,4'-thiobis[benzenethiol] (CA INDEX NAME)
CH 1
COP 916004-92-5
COP C47 H32 Cl12 N1 O 53

111 ANWER 5 OF 12 CAPSUS COPYRIGHT 2010 ACS on STM
2009:149557 Document No. 150:1803160 2-[3-Cyano-5,5-dimethyl-4-[4-(piperidin-1-yl)beta-1,3-diethyl]-2,5-dihydrofuran-2-ylidene]iminonitrile. Gansford, Glenn J.; Huynh, M. Belousov, H.; Kay, Andrew J.; Speck, Anthony L. (Industrial Research Limited).
Lower Hutt, N. Z.). Acta Crystallographica, Section E: Structure Reports Online, 65(4), 0503/1-0507/1 (English). 2009. COOBY ACCESS.
ISSN: 1600-5368. URL:
<http://journals.iucr.org/doi/abs/2009/02/00/pe0314>
pe0314.pdf. OTHER SOURCE: CASREACT 150:180314. Publisher: Blackwell Publishing Ltd.
AB 2-[3-Cyano-5,5-dimethyl-4-[4-(piperidin-1-yl)beta-1,3-diethyl]-2,5-dihydrofuran-2-ylidene]iminonitrile, C19H26N4, crystallizes as twinned crystals containing 2 independent molecules which pack into a 3-dimensional matrix
via several C-H...N(pyrane) interactions, with C-H...N ranging 3.24(8)-3.56(8) Å and C-H...N angles of 147-166°. Crystallog. data are given.
IT 1105024-87-9
R1 PEP (Properties); STM (Synthetic preparation); PEP (Preparation) (Preparation and crystal and mol. structure of)
R1 1105024-87-9 CAPSUS
CH Prepared in nitrile, 4-[[1E,3E)-4-[[1E,3E)-4-[[1-piperidinyl]-1,3-2-[[3-cyano-5,5-dimethyl-4-[[1E,3E)-4-[[1-piperidinyl]-1,3-2-benzidien-1-yl]-2-[[3H]-furan]idene]-1-yl]-2-cyano-1-[1,4,6-dimethoxyphenyl]-5-methyl-2-[[3H]-furan]idene]-1-polymer (CA INDEX NAME)
Double bond geometry as shown.



111 ANWER 6 OF 12 CAPSUS COPYRIGHT 2010 ACS on STM (Continued)

PAGE 1-A

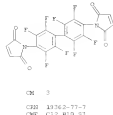


PAGE 2-A



CH 2

CHN 140714-27-8
COP C25 H4 F8 N4 O4



L11 ANHEM 7 OF 12 CAPLUS COPYRIGHT 2010 ACS on STM
2007.41926 Document No. 146.325690 Two-Photon Absorption in Quadrupolar Bis(acceptor)-Terminated Chromophores with Electron-Rich Bis(heterocycle)vinylene Bridges. Zhang, Shijun; Leclercq, Amalia; Fu, Jie; Beverina, Lucie; Padilha, Lazaro A.; Soyer, Egbert; Schmidt, Karim; Barlow, Stephen; Luo, Jieqiong; Jiang, Tao; Hu, Jun; Alex, F.-Y.; Li, Yuesong; Shuai, Zhigang; Van Styland, Eric W.; Magan, David J.; Bredas, Jean-Luc; Marder, Seth R. (School of Chemistry and Biochemistry, Georgia Institute of Technology, Atlanta, GA, 30332-0400, USA). Chemistry of Materials, 19(11), 432-442 (April 2007). CODEN CHMTEJ. ISSN 1065-9087. 0877-475X. OTHER SOURCE: CASREACT 146125469. Publisher: American Chemical Society.

AB Two-photon absorption spectra for a range of bis(acceptor)-substituted bis(dibutylphenyl)ethene and bis(10-benzylpyrrol-2-yl)ethene chromophores were recorded using 5-ns and white-light nonresonant pump-probe techniques. All the chromophores studied show strong near-IR two-photon absorption with cross sections at 2400-2500 nm (1 cm² = 1 × 10⁻¹⁶ cm²/photon) at photon wavelengths between 1.0 and 1.5 μm; cross sections >20000 cm² can be accessed close to the 1-photon absorption edge. Quantum-chemical calcs. reproduce the exptl. observed variations of the two-photon properties with the chemical structure.

IT 928792-01-49 928792-05-1P

EL: PEP (Properties); STM (Synthetic preparation); PEP (Preparation)

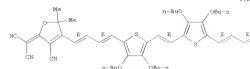
[Two-photon absorption in quadrupolar bis(acceptor)-terminated chromophores with electron-rich bis(heterocycle)vinylene bridges]

RI 928792-01-4 CAPLUS

CH Propanedinitrile, 2,2'-[[1(1)-1,2-ethenediylidene]](7,4-dibutyl-5,2-thiophenediyl)-[(16,76)-1,3-butadiene-4,1-diyl(3-cyano-5-methyl-4-furanyl-2(5H)-ylidene))]bis- (CA INDEX NAME)

Double bond geometry as shown.

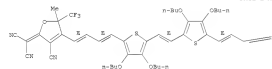
PAGE 1-A



RI 928792-05-6 CAPLUS
CH Propanedinitrile, 2,2'-[[1(1)-1,2-ethenediylidene]](7,4-dibutyl-5,2-thiophenediyl)-[(16,76)-1,3-butadiene-4,1-diyl(3-cyano-5-methyl-4-furanyl-2(5H)-ylidene))]bis- (CA INDEX NAME)

Double bond geometry as shown.

PAGE 1-A



PAGE 1-B



L11 ANHEM 7 OF 12 CAPLUS COPYRIGHT 2010 ACS on STM
2005.158523 Document No. 143177939 Two-Photon Absorption at Telecommunications Wavelengths in a Bipolar Chromophore with a Pyrrole Auxiliary Donor and Thiazole Auxiliary Acceptor. Beverina, Lucie; Fu, Jie;

Leclercq, Amalia; Soyer, Egbert; Bucher, Peter; Barlow, Stephen; Van Styland, Eric W.; Magan, David J.; Bredas, Jean-Luc; Marder, Seth R. (School of Chemistry and Biochemistry, Centre for Organic Photonics and Electronics, Georgia Institute of Technology, Atlanta, GA, 30332-0400, USA). Journal of the American Chemical Society, 127(26), 7282-7289 (English) 2005. CODEN JCHM. ISSN 0002-7863. OTHER SOURCE: CASREACT 143177793. Publisher: American Chemical Society.

AB Three new bipolar chromophores based on a dialkylaminophenyl donor, a pyrrole auxiliary donor, a thiazole auxiliary acceptor, and strong heterocyclic acceptors have been synthesized. For one of these compds.

we have measured a very large non-degenerate two-photon cross section of ca. 1500 cm² in the near-IR telecommunications range using a pump-probe technique. Calcs. indicate the cross section for degenerate two-photon absorption is likely to be ca. 60% of this value.

IT

955774-02-49
EL: PEP (Properties); STM (Synthetic preparation); PEP (Preparation)

[Two-photon absorption at telecommunications wavelengths in a bipolar chromophore with a pyrrole auxiliary donor and thiazole auxiliary acceptor]

RI 955774-02-4 CAPLUS

CH Propanedinitrile, 2-[3-cyano-4-[4-[2-[2-[5-[2-[4-(diethylamino)phenyl]ethenyl]-1-hexyl-1H-pyrrol-2-yl]ethenyl]-5-thiazolyl]-1,3-butadiene-1-yl]-3,5-dimethyl-2(1H)-furan-5-ylidene]- (CA INDEX NAME)

(C(2)15-Me

H(Ba-n)2

Chemical structure of a complex molecule with multiple rings, including a pyridine ring, a furan ring, and a thiophene ring, with various substituents and a central sulfur atom.

Chemical structure of a complex molecule with multiple rings, including a pyridine ring, a furan ring, and a thiophene ring, with various substituents and a central sulfur atom.

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Chemical structure of a complex molecule with multiple rings, including a pyridine ring, a furan ring, and a thiophene ring, with various substituents and a central sulfur atom.

Chemical structure of a complex molecule with multiple rings, including a pyridine ring, a furan ring, and a thiophene ring, with various substituents and a central sulfur atom.

Chemical structure of a complex molecule with multiple rings, including a pyridine ring, a furan ring, and a thiophene ring, with various substituents and a central sulfur atom.

Chemical structure of a complex molecule with multiple rings, including a pyridine ring, a furan ring, and a thiophene ring, with various substituents and a central sulfur atom.

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Chemical structure of a complex molecule with multiple rings, including a pyridine ring, a furan ring, and a thiophene ring, with various substituents and a central sulfur atom.

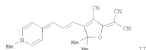
Chemical structure of a complex molecule with multiple rings, including a pyridine ring, a furan ring, and a thiophene ring, with various substituents and a central sulfur atom.

111 ANSWER 9 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN
2004:1117174 Document No. 1421745550 A preparation of zwitterionic
non-linear 1-[pyridylidenealkyl]eno[1-furyl]idene[3-propen]inditrile
derivatives, useful as optical chromophores (optophores).
Moolenaar, Anthony David; Kay, Andrew John [Industrial Research Limited,
P.O. Box 310, Mt. Wellington, New Zealand]; 2004:1117174, 47 pp. RESEARCH
STRATEGIES: M: A1, A2, A3, A4, A5, A6, A7, A8, A9, B1, B2, B3, B4, B5, B6, B7, B8, C1,
C2, C3, C4, C5, C6, C7, C8, C9, D1, D2, D3, D4, D5, D6, D7, D8, D9, E1, E2, E3, E4, E5,
G1, G2, H1, H2, I1, I2, I3, I4, I5, I6, I7, I8, I9, J1, J2, J3, J4, J5, J6, J7, J8, J9, K1, K2, K3, K4, K5, K6, K7, K8, K9, L1, L2, L3, L4, L5, L6, L7, L8, L9, M1, M2, M3, M4, M5, M6, M7, M8, M9, N1, N2, N3, N4, N5, N6, N7, N8, N9, O1, O2, O3, O4, O5, O6, O7, O8, O9, P1, P2, P3, P4, P5, P6, P7, P8, P9, Q1, Q2, Q3, Q4, Q5, Q6, Q7, Q8, Q9, R1, R2, R3, R4, R5, R6, R7, R8, R9, S1, S2, S3, S4, S5, S6, S7, S8, S9, T1, T2, T3, T4, T5, T6, T7, T8, T9, U1, U2, U3, U4, U5, U6, U7, U8, U9, V1, V2, V3, V4, V5, V6, V7, V8, V9, W1, W2, W3, W4, W5, W6, W7, W8, W9, X1, X2, X3, X4, X5, X6, X7, X8, X9, Y1, Y2, Y3, Y4, Y5, Y6, Y7, Y8, Y9, Z1, Z2, Z3, Z4, Z5, Z6, Z7, Z8, Z9. (Keyphrases): CODES: P14222. APPLICATIONS: WO
2004:082114 20040417. PRIORITY: NZ 2003-133831 20030618.

GI



I

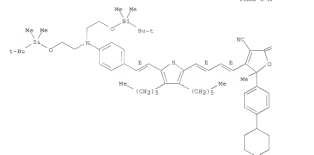


II

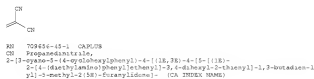
AB The invention relates to a preparation of zwitterionic second order
non-linear
optophores of formula I [wherein: I is a linking group comprising
(un)saturated chain of 1,3, or 7 carbon atoms which, together with the
double bond linking D to I, forms a conjugated polyenic chain; R1 and R2
are independently selected from alkyl, hydroxyalkyl, or p-C6H4-OMe; D is
a heterocycle]. These optophores display a large and efficient
of
optoelectronic devices. For instance, [furyl]idene[3-propen]inditrile
derivative II (Electronic absorption data in DMF, λ_{max} = 570 nm,
 $\log \epsilon$ = 4.86) was prepared with a yield of 83%.

111 ANSWER 10 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

PAGE 1-A



PAGE 1-B

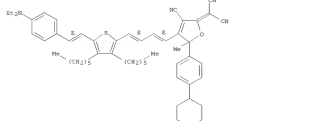


Double bond geometry as shown.

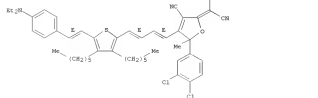
111 ANSWER 10 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN
2004:402609 Document No. 143147753 Photostability of High μ P
Electro-Optic Chromophores at 1550 nm. DeLuca, Michael K.; He, Mingqian;
Clineau, Jeffrey S.; Garner, Sean M.; Tang, Y. Ruby [Science Technology
Division, Corning Incorporated, Corning, NY, 14831, USA]. Journal of
Physical Chemistry B, 108(15), 8725-8736 (English), 2004. CODEN: JPCBFF
ISSN: 1520-6106. Publisher: American Chemical Society.
The authors present the photostability results of seven novel
electrooptic
chromophores made to be used as high-speed fiber optic signal modulators.
The authors measured the photobleaching rate of the chromophores at room
temperature by using a fiber optic pump-probe technique. This polymer
film
guest-host samples were deposited on the end of OM7-28 fiber opticals and
bleached by using 100 mW of 1550 nm radiation as the pump. The bleaching
rate was measured by monitoring the main absorption band of the
chromophore by using a 660 nm probe beam that was multiplexed into the
fiber pigtail. The relative photostability is reported as a figure of
merit which is proportional to the 1/e bleaching lifetime of the
chromophore. The authors found the bleaching rate to increase linearly
with incident 1550 nm power at the end of the single-mode fiber up to at
least 100 mW. The authors' results show that the photobleaching rate is
reduced dramatically when the test is conducted in an inert atmospheric
presence of the singlet O quencher DABCO can be used to increase the
lifetime of the chromophore. The effect that chromophore structure and
polymer host type have on photostability are also discussed.

IT 477025-26-7 7026545-47-7
R1: DRV (Device component use), FFP (Properties); URES (Uses)
[photostability of high μ P electro-optic chromophores at 1550
nm using in fiber-optic modulators]
R2 477892-36-7 CAPLUS
CN Propenedinitrile, 2-[4-[(1E,3E)-4-[5-[(1E)-2-[4-bis[2-[(1E,1E)-
dimethyl-2-ethenyl]ethenyl]oxy]ethyl]amino]phenyl]ethenyl]-3,4-dihydro-2-
thienyl]-1,3-butanediol-1-yl]-3-oxo-5-[4-(p-tolyl)phenyl]-5-methyl-2-[1H]-
furyl]idene-] (CA INDEX NAME)
Double bond geometry as shown.

111 ANSWER 10 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



RN 7026545-47-3 CAPLUS
CN Propenedinitrile,
2-[3-oxo-5-[2-[4-(diethoxycarbonyl)-4-[(1E,3E)-4-[5-[(1E)-
2-[4-(diethylamino)phenyl]ethenyl]-3,4-dihydro-2-thienyl]-1,3-butanediol-1-
yl]-3-methyl-2-[5H]-furyl]idene-] (CA INDEX NAME)
Double bond geometry as shown.



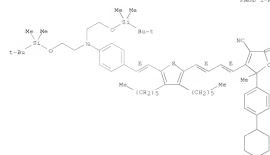
111 ANSWER 11 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
 2004/125411 Document No. 141:711560 Synthesis of New Electrooptic Chromophores and Their Structure-Property Relationship. He, Mingqian; Lealle, Thomas; Garver, Zsany Babasa, Michael; Citra, Jeffrey (Corning Incorporated, Corning, NY, 14831, USA). Journal of Physical Chemistry B, 2004, 108, 4731-4738 (English). 2004. CODEN: JPCCPE. ISSN: 1533-7080. OTHER SOURCES: COMPACT 141:71156. Publisher: American Chemical Society.

AB Several new high $\Delta\epsilon$ chromophores have been synthesized. These chromophores were intentionally designed to study structure-property relationships. The synthetic strategy that was followed has been described in our previous publications. Chromophore photostability was investigated from a structural point of view. Contact and corona poling of the chromophores have also been accomplished with a 70 ps/V ϵ^3 being achieved at $\lambda = 1550$ nm. The same chromophores were also studied in two different polymer host systems to compare their dependence of the electrooptic coefficient and stability on the matrix material.

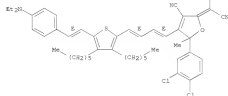
IT 477892-36-7 RI: PEP (Properties) [preparation of electrooptic chromophores and structure-property relationship]
 NI 477892-36-7 CAPLUS
 CN Propagandinitile, 2-[4-[(1E,3E)-4-[5-[(1E)-2-[4-[bis[2-[[1,1,1-trimethyl-2-ethoxyethyl]oxy]ethyl]amino]phenyl]ethenyl]-3,4-dihexyl-2-thienyl]-1,3-butadien-1-yl]-3-cyano-5-[4-cyclohexylphenyl]-5-methyl-2(1H)-furan-3-ylidene]- (CA INDEX NAME)

Double bond geometry as shown.

PAGE 1-A



111 ANSWER 11 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



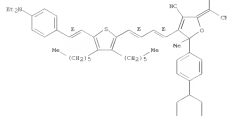
111 ANSWER 11 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

PAGE 1-B



IT 709656-45-1P 709656-47-3P
 NI: PEP (Properties); SPN (Synthetic preparation); PREP (Preparation) [preparation of electrooptic chromophores and structure-property relationship]
 NI 709656-45-1 CAPLUS
 CN Propagandinitile, 2-[3-cyano-5-[4-cyclohexylphenyl]-4-[(1E,3E)-4-[5-[(1E)-2-[4-[(diethylamino)phenyl]ethenyl]-3,4-dihexyl-2-thienyl]-1,3-butadien-1-yl]-5-methyl-2(1H)-furan-3-ylidene]- (CA INDEX NAME)

Double bond geometry as shown.



NI 709656-47-3 CAPLUS
 CN Propagandinitile, 2-[3-cyano-5-[2,4-dichlorophenyl]-4-[(1E,3E)-4-[5-[(1E)-2-[4-[(diethylamino)phenyl]ethenyl]-3,4-dihexyl-2-thienyl]-1,3-butadien-1-yl]-5-methyl-2(1H)-furan-3-ylidene]- (CA INDEX NAME)

Double bond geometry as shown.

111 ANSWER 12 OF 12 CAPLUS COPYRIGHT 2010 ACS on STN
 2004/187052 Document No. 138:146008 Synthesis of Chromophores with Extremely High Electro-optic Activity. 1. Thiophene-Bridge-Based Chromophores. He, Mingqian; Lealle, Thomas M.; Santer, John A.; Corning Incorporated, Corning, NY, 14831, USA). Chemistry of Materials, 16(11), 4662-4668 (English). 2002. CODEN: CHATEX. ISSN: 0897-4756. OTHER SOURCES: CASREACT

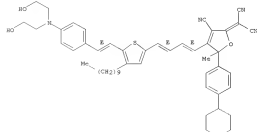
138:14608. Publisher: American Chemical Society.
 AB We have successfully synthesized several new substituted thiophene-based electro-optic chromophores. All of these chromophores have structures similar to PTC but they incorporated our newly designed triarylaminoindolylthiophene acceptors. Since these acceptors possess an anisotropic structure, all of the chromophores are very soluble in a wide range of organic solvents. Thermal study of these chromophores by TGA shows

all of them are very stable in air. UV spectra indicate the chromophores have a large solvatochromic effect, implying very large mol. nonlinearities.

IT 477892-35-6P 477892-36-7P
 RI: PEP (Properties); SPN (Synthetic preparation); PREP (Preparation) [chromophore synthesis of thiophene-bridge-based chromophores with extremely high electro-optic activity]

NI 477892-35-6 CAPLUS
 CN Propagandinitile, 2-[4-[(1E,3E)-4-[5-[(1E)-2-[4-[bis[2-[[1,1,1-trimethyl-2-ethoxyethyl]amino]phenyl]ethenyl]-3,4-dihexyl-2-thienyl]-1,3-butadien-1-yl]-3-cyano-5-[4-cyclohexylphenyl]-5-methyl-2(1H)-furan-3-ylidene]- (CA INDEX NAME)

Double bond geometry as shown.



NI 477892-36-7 CAPLUS
 CN Propagandinitile, 2-[4-[(1E,3E)-4-[5-[(1E)-2-[4-[bis[2-[[1,1,1-trimethyl-2-ethoxyethyl]amino]phenyl]ethenyl]-3,4-dihexyl-2-thienyl]-1,3-butadien-1-yl]-3-cyano-5-[4-cyclohexylphenyl]-5-methyl-2(1H)-furan-3-ylidene]- (CA INDEX NAME)

10560670.trn

111 ANSWER 12 OF 12 CAPLOS COPYRIGHT 2010 ACS on STN (Continued)
Double bond geometry as shown.

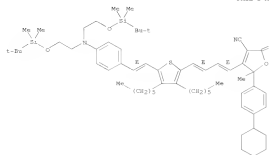


FIGURE 1-B



10560670.trn

=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

L1 STRUCTURE UPLOADED

L2 0 S L1

L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010

L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010

L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010

L6 172 SEA L5

L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010

L8 0 S OTOPHORE

L9 1 S OPTOPHORE

L10 0 S L3 AND L9

L11 12 S L4 OR L9

=> s electro-optic chromophores

102415 ELECTRO

13 ELECTROS

102427 ELECTRO

(ELECTRO OR ELECTROS)

69104 OPTIC

54862 OPTICS

109521 OPTIC

(OPTIC OR OPTICS)

22778 CHROMOPHORES

L12 26 ELECTRO-OPTIC CHROMOPHORES

(ELECTRO(W)OPTIC(W)CHROMOPHORES)

=> s electrooptic chromophores

25 ELECTROPTIC

5 ELECTROPTICS

30 ELECTROPTIC

(ELECTROPTIC OR ELECTROPTICS)

22778 CHROMOPHORES

L13 0 ELECTROPTIC CHROMOPHORES

(ELECTROPTIC(W)CHROMOPHORES)

=> s electrooptic chromophores

10509 ELECTROOPTIC

872 ELECTROOPTICS

11072 ELECTROOPTIC

(ELECTROOPTIC OR ELECTROOPTICS)

22778 CHROMOPHORES

10560670.trn

L14 27 ELECTROOPTIC CHROMOPHORES
(ELECTROOPTIC(W)CHROMOPHORES)

=> s electrooptic
10509 ELECTROOPTIC
872 ELECTROOPTICS
L15 11072 ELECTROOPTIC
(ELECTROOPTIC OR ELECTROOPTICS)

=> s l15 and chromophore
30266 CHROMOPHORE
22778 CHROMOPHORES
42954 CHROMOPHORE
(CHROMOPHORE OR CHROMOPHORES)

L16 660 L15 AND CHROMOPHORE

=> s l12 or l14 or l16
L17 679 L12 OR L14 OR L16

=> file reg
FILE 'REGISTRY' ENTERED AT 15:04:07 ON 07 JUN 2010
USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.
PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
COPYRIGHT (C) 2010 American Chemical Society (ACS)

Property values tagged with IC are from the ZIC/VINITI data file
provided by InfoChem.

STRUCTURE FILE UPDATES: 3 JUN 2010 HIGHEST RN 1226953-63-4
DICTIONARY FILE UPDATES: 3 JUN 2010 HIGHEST RN 1226953-63-4

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH January 8, 2010.

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and
predicted properties as well as tags indicating availability of
experimental property data in the original document. For information
on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stdoc/properties.html>

=> s c6n/rf
L18 269403 C6N/RF

=> s c5n/rf
SYSTEM LIMITS EXCEEDED - SEARCH ENDED
The search profile you entered was too complex or gave too many
answers. Simplify or subdivide the query and try again. If you have
exceeded the answer limit, enter DELETE HISTORY at an arrow prompt
(=>) to remove all previous answers sets and begin at L1. Use the
SAVE command to store any important profiles or answer sets before

10560670.trn

using DELETE HISTORY.

=> fil tra rn l17

'TRA' IS NOT A VALID FILE NAME

Enter "HELP FILE NAMES" at an arrow prompt (=>) for a list of files that are available. If you have requested multiple files, you can specify a corrected file name or you can enter "IGNORE" to continue accessing the remaining file names entered.

ENTER A FILE NAME OR (IGNORE):ignore

'RN' IS NOT A VALID FILE NAME

Enter "HELP FILE NAMES" at an arrow prompt (=>) for a list of files that are available. If you have requested multiple files, you can specify a corrected file name or you can enter "IGNORE" to continue accessing the remaining file names entered.

ENTER A FILE NAME OR (IGNORE):end

=> tra rn l17

L19 TRANSFER L17 1- RN : 3023 TERMS

L20 3023 L19

=> s l20 and c5n/rf

7971765 C5N/RF

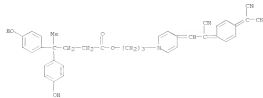
L21 214 L20 AND C5N/RF

=> d scan 1-

'1-' IS NOT A VALID FORMAT FOR FILE 'REGISTRY'

10560670.trn

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Benzenesulfonamide acid, 4-hydroxy-γ-(4-hydroxyphenyl)-γ-methyl-,
 3-(4-[2-cyano-2-[4-(4-cyanomethylamino)-2,5-cyclohexadien-1-ylidene]ethylidene]-1(4H)-pyridinyl]propyl) ester, polymer with
 1,3,5-benzenetriisobutyl trioxide (PCI)
 MF C19 H22 N4 O4 - C9 H9 Cl3 O3
 CI 1965
 CH 3



CH 2



The following are valid formats:

Substance information can be displayed by requesting individual fields or predefined formats. The predefined substance formats are: (IN = CAS Registry Number)

REG - IN
 NAM - Index Name, MF, and structure - no RN
 FIDE - All substance data, except sequence data
 IDE - FIDE, but only 50 names
 SQIDE - IDE, plus sequence data

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM (Continued)
 SQIDE3 - Same as SQIDE, but 3-letter amino acid codes are used
 SQB - Protein sequence data, includes RN
 SQDI - Same as SQB, but 3-letter amino acid codes are used
 SQN - Protein sequence name information, includes RN
 EPROP - Table of experimental properties
 EPROP - Table of predicted properties
 EPROP - EPROP, RTAG, EPROP

Any CA File format may be combined with any substance format to obtain CA references citing the substance. The substance formats must be cited first. The CA File predefined formats are:

ABS -- Abstract
 APFS -- Application and Priority Information
 EIB -- CA Accession Number, plus Bibliographic Data
 CAN -- CA Accession Number
 CEIB -- CA Accession Number, plus Bibliographic Data (compressed)
 IND -- Index Data
 IPC -- International Patent Classification
 PATN -- PI, SO
 STD -- EIB, IPC, and NCL
 IABS -- ABS, indented, with text labels
 IEIB -- EIB, indented, with text labels
 ISTD -- STD format, indented

ORIB ----- AB, plus Bibliographic Data (original)
 ORIB ----- ORIB, indented with text labels

SRIB ----- RIF, no citations
 SRIB ----- IER, no citations

The ALL format gives FIDE RIF ABS IND RE, plus sequence data when it is available.
 The MAX format is the same as ALL plus SPEC.
 The IALL format is the same as ALL with RIF ABS and IND indented, with text labels.

For additional information, please consult the following help messages:

HELP DFIELDS -- To see a complete list of individual display fields.
 HELP FORMATS -- To see detailed descriptions of the predefined formats.
 HOW MANY MORE NUMBERS DO YOU WISH TO SCANT (1)read

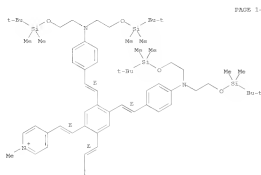
10560670.trn

=> d scan

10560670.trn

121 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 4,4'-[[4,5-bis-[[18]-2-[6-bis[2-[[[1,2-dimethylthyl]dimethylallyloxy]ethyl]amino]phenyl]ethoxy]-1,2-phenylene]di-[[18]-2,4'-ethenediyl]bis-1'-methyl-, diiodide (9CI)
 MF C70 H208 I04 O04 S04 . 2 2
 CI C09

Double bond geometry as shown.



PAGE 1-A



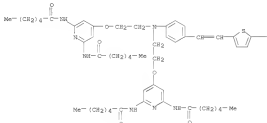
PAGE 2-A



HOW MANY MORE ANSWERS DO YOU WISH TO SEARCH? (1)-2000

121 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Sebacamide,
 N,N'-Bis[[4,4'-[[4,5-bis-[[1,3-diethyltetrahydro-2,4,6-trioxo-5[[[1,3-oxaphosphinyl]methyl]-2-thienylethynyl]phenyl]imino]bis(2,1-ethanediyloxy-4,2,6-pyridinediyl)]tetrakis- (9CI)
 MF C39 H70 N0 O0 S
 CI PMS

PAGE 1-A



PAGE 1-B



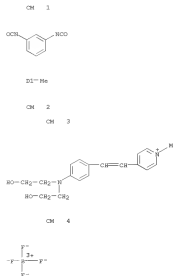
PROPERTY DATA AVAILABLE IN THE 'PROD' FORMAT

121 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 1-[2-hydroxypropyl]-4-methyl-,
 MF C09 H14 N 0
 CI C0M



121 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 4-[2-[4-bis[2-hydroxyethyl]amino]phenyl]ethenyl]-1-methyl-,
 tetrafluoroborate[1-], polymer with 1,3-dicyanatomethylbenzene (9CI)
 MF C18 H23 N0 O0 . C09 H0 N0 O0 . 8 F04
 CI PMS

RELATED POLYMERS AVAILABLE WITH POLYLINK

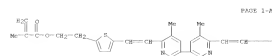


10560670.trn

L21 214 ANHEMRS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 1-(2-carboxyethyl)-4-[2-[4-(didecylamino)phenyl]ethenyl]-,
 isox salt
 MF C26 H36 N2 O2



L21 214 ANHEMRS REGISTRY COPYRIGHT 2010 ACS on STM
 IN 2-Propenoic acid, 2-methyl-, 2-[5-[2-[5,5'-dimethyl-1,4'-[2-(5-pentyl-2-thienyl)ethenyl][5,3'-bipyridin]-6-yl]ethenyl]-2-thienyl]ethyl ester
 MF C26 H38 N2 O2
 CI OCN



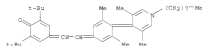
PAGE 1-A

PAGE 1-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHEMRS REGISTRY COPYRIGHT 2010 ACS on STM
 IN 2,5-Cyclohexadien-1-one,
 2,6-bis[1,2-dimethylethyl]-4-[2-[4-(3,5-dimethyl-1-methyl-1(1H)-pyridinylidene)-3,5-dimethyl-2,5-cyclohexadien-1-ylidene]ethyldene)-
 MF C27 H35 N O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHEMRS REGISTRY COPYRIGHT 2010 ACS on STM
 IN 2,5-Cyclohexadien-1-one, 2,5-dimethyl-4-(1,3,5-trimethyl-4(1H)-pyridinylidene)-
 MF C18 H13 N O
 CI OCN

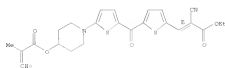


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

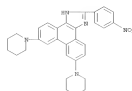
L21 214 ANHEMERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN 2-Propenoic acid,
 2-oxo-3-[5-[15-[4-[[2-methyl-1-oxo-2-propen-1-yl]oxy]-
 3-piperidinyl]-2-thiaryl]oxanonyl]-2-thienyl-, ethyl ester, (2R)-
 MF C14 H24 N2 O5 S2
 CI C29

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHEMERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN 18-Phenanthro[9,10-d]imidazole, 2-(4-nitrophenyl)-6,9-di-1-piperidinyl-
 MF C31 H31 N5 O2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

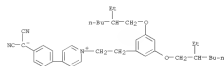
L21 214 ANHEMERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 4-methyl-5-octyl-, bromide [1:1]
 MF C14 H24 N + Br



• Br⁻

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

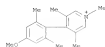
L21 214 ANHEMERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 1-[2-[3,5-bis[[2-ethylphenyl]oxy]phenyl]ethyl]-4-[4-(dicyanomethyl)phenyl]-, inner salt
 MF C38 H40 N2 O2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

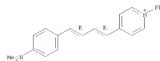
L21 214 ANHEMEO REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 4-[(4-methoxy-2,6-dimethylphenyl)-1,3,5-trimethyl-, uodide
 [111]
 MF C17 H22 N O 1



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

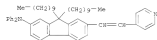
L21 214 ANHEMEO REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 4-[(1H,3E)-4-[4-(dimethylamino)phenyl]-1,3-butadiene-1-yl]-1-phenyl-
 phenyl-
 MF C29 H32 N2
 CI O3H

Double bond geometry as shown.



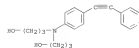
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHEMEO REGISTRY COPYRIGHT 2010 ACS on STM
 IN 2E-Fluorene-2-amine, 9,9-didecyl-8,9-diphenyl-7-[2-(4-pyridinyl)ethenyl]-
 MF C51 H54 N2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHEMEO REGISTRY COPYRIGHT 2010 ACS on STM
 IN 1-Fropagmol, 3,3'-[[4-(4-pyridinylethynyl)phenyl]amino]bis- (PCI)
 MF C19 H22 N2 O2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

121 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 4-[[2-[4-(dimethylamino)phenyl]ethenyl]-1-ethyl-, iodide (1:1)
 MF C17 H21 N2 I

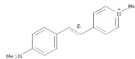


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

121 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 4-[[1(1R)-2-[4-(dimethylamino)phenyl]ethenyl]-1-methyl-,
 6-amino-1-naphthalenesulfonate (1:1)
 MF C16 H19 N2 S O2

CN 1

Double bond geometry as shown.

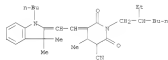


CN 2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

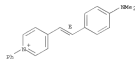
121 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN 3-Igerradinecarboxitrile,
 5-[[2-[1-ethyl-3,3-dihydro-3,3-dimethyl-2H-indol-
 2-ylidene]ethyl]idene]-3-(2-ethylphenyl)-4-methyl-2,6-dioxo-
 MF C21 H43 N2 O2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

121 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 4-[[1(1R)-2-[4-(dimethylamino)phenyl]ethenyl]-1-phenyl-,
 MF C21 H21 N2
 CN

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN [2,2'-Bithiophene]-5-carboxaldehyde, 5'-(1-piperidinyl)-
MF C14 H15 N O S2

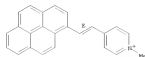


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridinium, 1-methyl-4-[2-(1-pyrenyl)ethenyl]-, (E)-, salt with
4-methylbenzenesulfonic acid (1:1) (PC1)
MF C24 H18 N + C7 H7 O3 S

CN 1

Double bond geometry as shown.



CN 2

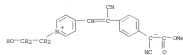


L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridine, 2-chloro-3,5-dinitro-
MF C5 H2 Cl N3 O4
CI CN



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridinium,
4-[2-cyano-2-[4-(1-cyano-3-methoxy-2-methylphenyl)ethenyl]-
1-(2-hydroxyethyl)]-, inner salt
MF C20 H17 N3 O3

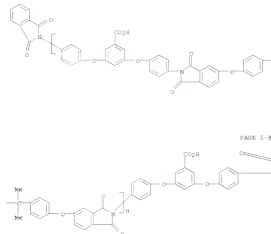


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

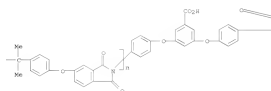
10560670.trn

L21 214 ANDREWS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Poly[1,3-dihydro-2,3-dioxo-2H-isoindole-2,5-diyl]oxy-1,4-phenylene[1,3-naphthylethyldiene)-1,4-phenyleneoxy[5-naphtho-1,3-phenyleneoxy-1,4-phenylene],
 n-14-[3-carboxy-5-(4-11,3-dihydro-2,3-dioxo-2H-isoindol-2-yl)phenoxy]phenyl]phenyl] = 1,3-dihydro-2,3-dioxo-2H-isoindol-2-yl-
 3,5-bis[1,3-dimethylethyl]phenyl] ester, ester with
 4-[(11)-2-cyano-2-(4-{dicyanomethyl}phenyl)ethynyl]-1-(13-hydroxypropyl)pyridinium inner salt (BCI)
 MF C50 H12 N2 O10
 CH 3

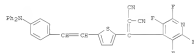
PAGE 1-A



PAGE 1-B



L21 214 ANDREWS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Prepared initially, 2-[(3-[2-(4-(diphenylamino)phenyl)ethyl]-2-thienyl)[2,3,5,6-tetrafluoro-4-pyridinyl]methylene]-
 MF C39 H28 F4 N4 S



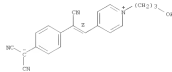
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANDREWS REGISTRY COPYRIGHT 2010 ACS on STM (Continued)
 PAGE 1-C



CH 2

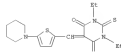
Double bond geometry as shown.



CH 3



L21 214 ANDREWS REGISTRY COPYRIGHT 2010 ACS on STM
 IN 4,6-[2,5-Pyrimidinediene, 1,3-diethylidihydro-5-[(5-(1-piperidinyl)-2-thienyl)methylene]-2-thio-
 MF C18 H22 N2 O2 S2



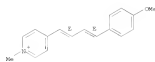
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 4-([12,26]-6-(4-methoxyphenyl)-2,3-butadienyl)-1-methyl-,
 salt
 with 4-methylbenzenesulfonic acid (1:1) (PCI)
 MF C17 H18 N O . C7 H7 O3 S
 CI CCM

CH 1

Double bond geometry as shown.



CH 2



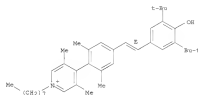
L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 4-methyl-,
 MF C6 H7 N
 CI CCM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 4-([1-(12)-2-(3,5-diis(1,2-dimethylethyl)-4-hydroxyphenyl)ethenyl]-2,6-dimethylphenyl)-3,5-dimethyl-1-octyl-,
 MF C28 H36 N O
 CI CCM

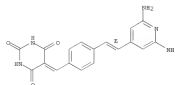
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN 2,4,6-(12,26,58)-Pyrimidinotriose, 2-([4-(12)-2-(2,6-diamino-4-pyridinyl)ethenyl]phenyl)methylene)-
 MF C18 H13 N5 O3
 CI CCM

Double bond geometry as shown.

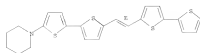


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L21 214 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Piperidine,
 1-[5'-[1(1E)-2-[5,2'-bithiophen]-5-ylmethoxy][2,2'-bithiophen]-
 5-yl]-
 MF C23 H21 N S4

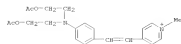
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium,
 4-[2-[4-[bis[2-(acetoxy)ethylamino]phenylethoxy]-1-methyl-
 , 4-methylbenzenesulfonate (1:1)]
 MF C22 H27 N2 O4 . C7 H7 O3 S

CN 1



CN 2

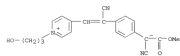


L21 214 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Prepared acrylonitrile, 2-[2-(1-methyl-4(1E)-pyridinylidene)ethylidene]-
 MF C11 H9 N3



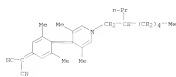
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium,
 4-[2-cyano-2-[4-(1-cyano-2-methoxy-3-methylphenylethoxy)]-
 1-(3-hydroxypropyl)]-, inner salt
 MF C21 H19 N3 O3



10560670.trn

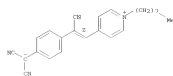
L21 214 ANHMERZ REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[[4-[7,5-dimethyl-5-[(2-propylthiophyl)-4(1H)-
 pyridinylidene]-3,5-dimethyl-2,5-cyclohexadien-1-ylidene]-
 MF C18 H17 N3



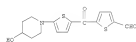
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHMERZ REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 4-[[1(2)-2-cyano-2-[4-(diacyanomethyl)phenyl]ethenyl]-1-octyl-,
 inner salt
 MF C25 H26 N4

Double bond geometry as shown.



L21 214 ANHMERZ REGISTRY COPYRIGHT 2010 ACS on STM
 IN 2-Thiophenecarboxaldehyde, 5-[[5-(4-hydroxy-1-piperidinyl)-2-thienyl]carboxyl]-
 MF C15 H13 N O3 S2



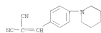
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHMERZ REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 1-(2-hydroxyethyl)-4-methyl-
 MF C8 H12 N O
 CI C0M



10560670.trn

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN Propanedinitrile, 2-[(4-[1-piperidinyl]phenyl)methylene]-
MF C18 H15 N3
CZ OAN

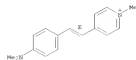


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

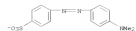
L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridazin, 4-[(1E)-2-[4-(dimethylamino)phenyl]ethenyl]-1-methyl-,
6-[2-[4-(dimethylamino)phenyl]diazenyl]benzenesulfonate (1:1)
MF C16 H19 N2 . C14 H14 N2 O2 S

CN 1

Double bond geometry as shown.

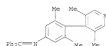


CN 2



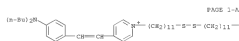
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN Benzenamine, 4-[9,5-dimethyl-4-pyridinyl]-N-(diphenylmethylene)-3,5-dimethyl-,
MF C28 H28 N2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

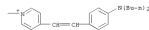
L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridinium, 1,3'-[6,6'-dichloro-11,5'-undecanediyl]bis[4-[2-[4-(dimethylamino)phenyl]ethenyl]-], bromide (1:2)
MF C64 H50 N4 Br2 . 2 Br



PAGE 3-A



PAGE 3-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L21 214 ANHEMRE REGISTRY COPYRIGHT 2010 ACS on STM
 IN Acetonitrile, 2-(2,6-dimethyl-4-(1H-pyridin-2-ylidene)-
 MF C9 H10 N2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

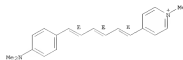
L21 214 ANHEMRE REGISTRY COPYRIGHT 2010 ACS on STM
 IN 2,6-Pyridinedicarboxylic, 4-(phenylmethyl)-
 MF C12 H11 N2 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHEMRE REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 4-[(1E,3E,5E)-6-[4-(dimethylamino)phenyl]-1,3,5-hexatrien-1-yl]-1-methyl-, 4-methylbenzenesulfonate (1:1)
 MF C29 H33 N2 . C7 H7 O3 S

CN 1
 Double bond geometry as shown.



CN 2



L21 214 ANHEMRE REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propionitrile, 2-[(2,5-bis(1-methylethyl)-4-(1-piperidinyl)phenyl)methylene]-
 MF C25 H32 N2

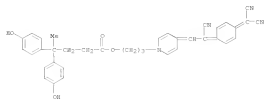


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L21 214 ANHMER8 REGISTRY COPYRIGHT 2010 ACS on STM
 IN Benzenesulfonazoic acid, 4-hydroxy-γ-(4-hydroxyphenyl)-γ-methyl-,
 3-[4-[2-cyano-2-[4-(4-pyranomethylsue)-3,5-cyclohexadien-1-ylidene]ethylidene]-1-(4H-pyridinyl)propyl] water, polymer with
 MF C17 H12 H4 O4 . C7 H5 Cl3 O3)
 CI 195

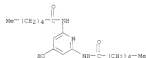
CH 1



CH 2

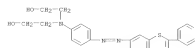


L21 214 ANHMER8 REGISTRY COPYRIGHT 2010 ACS on STM
 IN Benzenesulfate, N,N'-(4-hydroxy-3,6-pyridinediyl)bis-
 MF C17 H21 N3 O3



***PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

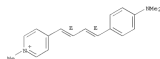
L21 214 ANHMER8 REGISTRY COPYRIGHT 2010 ACS on STM
 IN Ethanol,
 2,2'-[4-[12-(4-pyridinyl)-6-benzothiazolyl]azo]phenyl]imino]bis-
 (PCl)
 MF C22 H21 N5 O2 S



***PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

L21 214 ANHMER8 REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 4-[[18,36)-4-[[4-(dimethylamino)phenyl]-1,3-betadim-1-yl]-1-
 methyl-
 C18 H21 N2
 CI COM

Double bond geometry as shown.



***PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

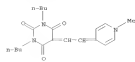
10560670.trn

121 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridine, 3-methyl-4-nitro-, 1-oxide
 MF C6 H6 N2 O3
 CI OCN



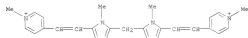
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

121 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN 2,4,6-(1H,3H,5H)-Pyrimidinotriazine, 1,3-dibutyl-5-[2-(1-methyl-4(1H)-pyridinylidene)ethylidene]-
 MF C20 H27 N7 O3

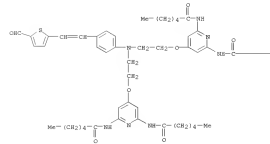


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

121 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridine, 4,4'-[methylenebis(1-methyl-3H-pyrrole-5,2-diy)]-2,1-ethenediy]]bis[1-methyl- (PCI)
 MF C17 H20 N4
 CI OCN



121 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Hexanamide, N,N',N'',N'''-[[[[4-[2-(5-formyl-2-thienylethynyl)phenyl]imino]bis(2,1-ethanediyloxy)-4,2,6-pyridinetriyl]]]tetrakis- (PCI)
 MF C51 H69 N7 O7 S



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PAGE 1-B

--- (CH2)4---Me

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Piperidine, 1-(5'-nitro[2,2'-bithiophen]-5-yl)-
 MF C13 H14 N2 O2 S2



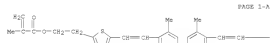
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 1-[2-(4-(di-octadecylamino)phenyl)ethenyl]-, inner salt
 MF C52 H88 N2 O2



L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN 2-Propenoic acid, 2-methyl-, 2-(9-octadecyl-9-ylethyl ester, polymer with
 2-[5-[2-[1,1'-dimethyl-4'-[2-[5-pentyl-2-thienylethenyl]](2,3'-bipyridin)-4-yl]ethenyl]-2-thienylethyl]-2-methyl-2-propenoate
 MF C85 H139 N2 O2 S2 . C19 H17 N O2)x
 CI 790

CH 1

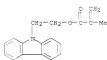


PAGE 1-A

PAGE 1-B

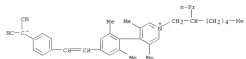


CH 2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

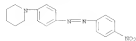
L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 4-[4-[2-[4-(di-octadecylamino)phenyl]ethenyl]-2,6-dimethylphenyl]-3,5-dimethyl-1-[2-propylthienyl]-, inner salt
 MF C76 H83 N2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

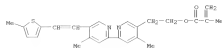
10560670.trn

L21 214 ANHEMERS REGISTRY COPYRIGHT 2010 ACS on STM
IN Piperidine, 1-[4-[2-(4-nitrophenyl)diacetylphenyl]-
MF C17 H19 N4 O2



PROPERTY DATA AVAILABLE IN THE 'PDOC' FORMAT

L21 214 ANHEMERS REGISTRY COPYRIGHT 2010 ACS on STM
IN 2-Propenoic acid, 2-methyl-, 2-[4,4'-dimethyl-5'-[2-(5-methyl-2-
thienylethoxy)]-2',2'-bipyridin-5-yl]ethyl ester
MF C25 H28 N2 O2 S
CI OCN



PROPERTY DATA AVAILABLE IN THE 'PDOC' FORMAT

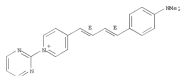
L21 214 ANHEMERS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridine, 4-[(4-iodo-1,6-dimethylphenyl)-3,5-dimethyl-
MF C15 H16 I N



PROPERTY DATA AVAILABLE IN THE 'PDOC' FORMAT

L21 214 ANHEMERS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridinium,
4-[[1E,3E]-4-[4-(dimethylamino)phenyl]-1,3-butadien-1-yl]-1-(2-
pyridinyl)-
MF C21 H21 N4
CI OCN

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PDOC' FORMAT

10560670.trn

L21 214 ANHEIMS REISTRY COPYRIGHT 2010 ACS on STM
IN Methanone, [3-(1-piperidiny)-2-thienyl]-2-thienyl-
MF C14 H15 N O S2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHEIMS REISTRY COPYRIGHT 2010 ACS on STM
IN 2,2'-(6',2'')-Thiopyridine, 4'-bromo-
MF C15 H10 Br N2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHEIMS REISTRY COPYRIGHT 2010 ACS on STM
IN Pyridine, 4-(4-bromophenyl)-
MF C11 H8 Br N
CI CON

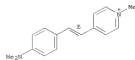


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHEIMS REISTRY COPYRIGHT 2010 ACS on STM
IN Pyridinium, 4-[[12]-5-[4-(dimethylamino)phenyl]ethenyl]-1-methyl-,
2,4,6-trimethylbenzenesulfonate (1:1)
MF C16 H19 N2 . CH H11 O3 S

CH 1

Double bond geometry as shown.



CH 2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

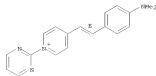
L21 214 ANHMER6 REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridium, 4-[(4-methoxy-2,6-dimethylphenyl)-3,5-dimethyl-
 MF C16 H19 N O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHMER6 REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 4-[(1E)-2-[4-(dimethylamino)phenyl]ethenyl]-3-(2-pyrimidinyl)-
 MF C19 H19 N4
 CI O3H

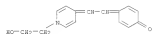
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHMER6 REGISTRY COPYRIGHT 2010 ACS on STM
 IN Benzaldehyde, 2,4-dihydroxy-, compd, with
 4-[2-[1-(2-hydroxyethyl)-4(1H)-pyridinylidene]ethylidene]-2,5-
 cyriobenzadum-1-one, hydrate (1:1:1)
 MF C19 H21 N O2 . C7 H6 O3 . 1/2 H2 O

CH 3



CH 2

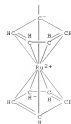


L21 214 ANHMER6 REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 1-methyl-4-[6-(4-hydroxyphenyl)-3,5-hexatrienyl]-, (E,E,E)-,
 as salt
 with 4-methylbenzenesulfonic acid (1:1) (PCI)
 MF C22 H22 N S O4 . C7 H7 O3 S

CH 1



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PAGE 2-A

CH 2

10560670.trn

L21 214 ANHEMS REGISTRY COPYRIGHT 2010 ACS on STM (Continued)

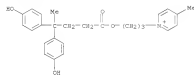


L21 214 ANHEMS REGISTRY COPYRIGHT 2010 ACS on STM
IN 2-Pyridinamine, 5-nitro-
MF C5 H5 N3 O2
CI OCN



***PROPERTY DATA AVAILABLE IN THE 'FREQ' FORMAT**

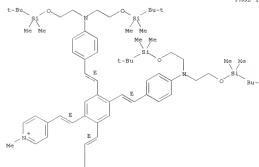
L21 214 ANHEMS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridinium, 1-[[3-[[[4,4-bis(4-hydroxyphenyl)-1-oxypropyl]-4-methyl-2-phenyl]-2-ethenyl]bis(1,1-ethenediyl)]bis(1-methyl-2-phenylethenedimethyl)]-2,2-trifluoroethanesulfonic acid (1:2) (SCI)
MF C70 H122 N4 O4 S14 . 2 C F3 O3 S
CI OCN



L21 214 ANHEMS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridinium, 4,4'-[[4,5-bis(1,1-ethenediyl)-2-[[4-bis(2-[[[1,1-dimethylethyl]dimethylethyl]oxy]ethyl]amino]phenyl)ethenyl]-2,2-phenylene]bis(1,1-ethenediyl)]bis(1-methyl-2-phenylethenedimethyl)]-2,2-trifluoroethanesulfonic acid (1:2) (SCI)
MF C70 H122 N4 O4 S14 . 2 C F3 O3 S
CI OCN

Double bond geometry as shown.

PAGE 1-A



PAGE 2-A



CI 2

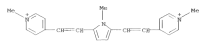
10560670.trn

L21 214 ANHEMS REGISTRY COPYRIGHT 2010 ACS on STM (Continued)

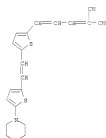


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHEMS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridazinone, 4,4'-[[1-methyl-2H-pyrrole-2,5-diyl]di-2,1-ethenediyl]bis[1-methyl-1-(PCI)]
 NF C12 H23 N7
 CI OCN



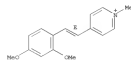
L21 214 ANHEMS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propenedinitrile, 2-[5-[2-[5-[1-(piperidinyl)-2-thienyl]ethenyl]-2-thienyl]-2-propen-1-ylidene]-
 NF C12 H13 N3 S2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHEMS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridazinone, 4-[2-[2,4-dimethoxyphenyl]ethenyl]-1-methyl-, (E)-, salt with 4-methylbenzenesulfonic acid (1:1) (PCI)
 NF C16 H18 N2 O5 . C7 H7 O2 S

CH 1
 Double bond geometry as shown.



CH 2



10560670.trn

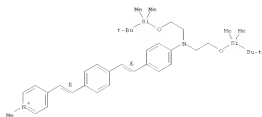
L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN Piperidine
MF C5 H11 N
CZ CON, IFS



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

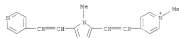
L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridanum, 4-[(1E)-2-[4-[(1E)-2-[4-[bis[2-[[[1,3-dimethylethyl]dimethylsilyloxy]ethylamino]phenyl]ethenyl]ethenyl]-1-methyl-, iodide (1:1)]
MF C28 H37 N2 O2 SiI2 - 1

Double bond geometry as shown.



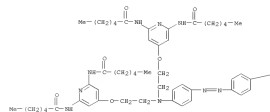
● 1 -

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridanum,
1-methyl-4-[2-[1-methyl-5-[2-(6-pyridinyl)ethenyl]-1H-pyrazol-2-yl]ethenyl],
MF C20 H20 N3
CZ CON



L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN Hexanamide, N,N',N'',N'''-[[[4-[[4-nitrophenylazo]phenyl]imino]bis(2,1-ethanedithioloxy-4,2,6-pyridimethyl)]tetrakis- (PCI)
MF C50 H58 N10 OS

PAGE 1-A



PAGE 1-B

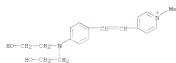
— H2O2

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L21 214 ANHEMERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 4-[(2-{4-[(base[2-hydroxyethyl]amino]phenyl]ethenyl}-1-methyl-1H-tetrafluoroborate[1-]) (1:1)]
 MF C15 H23 N2 O2 S 19 F4
 CI COH

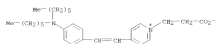
CH 1



CH 2



L21 214 ANHEMERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 1-[2-(4-(diethylamino)phenyl)ethenyl]-, inner salt
 MF C20 H26 N2 O2
 CI COH



L21 214 ANHEMERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN 2-Thiophenemethanol, 5-[2-{5,5'-dimethyl-6'-[2-(5-pentyl-2-thienyl)ethenyl][3,3'-bipyridin]-6-yl]ethenyl)-
 MF C31 H34 N2 O S2
 CI COH

PAGE 1-A

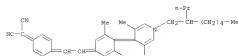


PAGE 1-B

—CH2—CH

PROPERTY DATA AVAILABLE IN THE 'P90' FORMAT

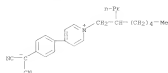
L21 214 ANHEMERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propionitrile, 2-[4-{2-[4-{5,5-dimethyl-1-[3-propylheptyl]-4(1H)-pyridinylidene]-3,5-dimethyl-2,5-cyclohexadien-1-ylidene]ethylenylidene]-2,5-cyclohexadien-1-ylidene]-
 MF C36 H43 N2
 CI COH



PROPERTY DATA AVAILABLE IN THE 'P90' FORMAT

10560670.trn

L21 214 ANHEMS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridinium, 4-[(4-dicyanomethyl)phenyl]-2-(2-propylheptyl)-, inner salt
MF C24 H29 N7



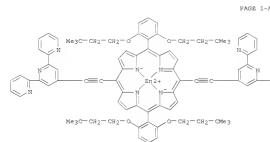
L21 214 ANHEMS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridinium, 4-(4-hydroxy-2,6-dimethylphenyl)-3,7,5-trimethyl-, iodide
(1:1)
MF C16 H20 N O . I



• 2-

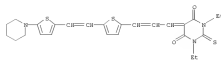
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHEMS REGISTRY COPYRIGHT 2010 ACS on STM
IN Dioxo,
[5,15-bis[2,6-bis(3,3-dimethylbutoxy)phenyl]-20,20-bis[[2,2',6',2''-
terpyridine]4''-ylethynyl]-2,10,20-trisulfonate(2-)-
Na2, Na2, Na2, Na2]-, (SP-6-1)- (9CI)
MF C86 H86 N12 O4 S4
CI OCB



PAGE 1-A

L21 214 ANHEMS REGISTRY COPYRIGHT 2010 ACS on STM
IN 4,6-[2,5,5P]-Pyrimidinodione, 1,3-diethylethylhydro-5-[3-[5-[2-[5-(1-
piperidinyl)-2-thienyl]ethyl]-2-thienyl]-2-propen-1-ylidene]-2-thio-
C16 H23 N3 O2 S2
MF



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L21 214 ANHEMRS REGISTRY COPYRIGHT 2010 ACS on STM
IN 2-Pyridanum, 5-nitro-, phosphate [1:1]
MF C5 H5 N3 O2 . H3 O4 P

CN 1



CN 2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHEMRS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridium, 2-ethyl-, homopolymer
MF C7 H7 N)x
CI PMS, CM

CN 1

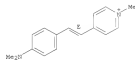


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHEMRS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridium, 4-[[1,3-bis-(4-(dimethylamino)phenyl)ethenyl]-1-methyl-,
3-naphthalenesulfonate [1:1]
MF C24 H24 N2 . ClS 87 O3 S

CN 1

Double bond geometry as shown.



CN 2

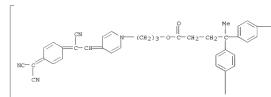


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

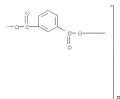
L21 214 ANHEMRS REGISTRY COPYRIGHT 2010 ACS on STM
IN Poly[oxy-carbonyl-1,3-phenylene-carbonyloxy-1,4-phenylene[4-[3-[4-[2-cyano-2-(4-(di-carbamethylene)-2,3-oxepanediene-1-ylidene)ethylidene]-1,4(1H)-pyridinyl]propoxy]-1-methyl-4-oxobutylidene]-1,4-phenylene] (PC1)
MF C45 H24 N4 O6)n
CI PMS

RELATED POLYMERS AVAILABLE WITH POLYLIN

PAGE 1-A



PAGE 1-B

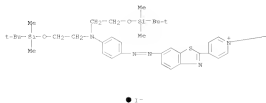


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L21 214 ANHEMRS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridanum, 4-[[4-[2-[[4-bis(2-[[3,3,3-trimethylbutyl]dimethylsilyloxy]ethyl]amino]phenyl]diacetyl]-2-benzothiazonyl]-1-[[2-[[3-trimethylsilyl]propyl]-1, sulfide (1413
 MF C40 H54 N5 O5 S 813 . 1

PAGE 1-A



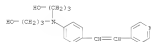
• 1 -

PAGE 1-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHEMRS REGISTRY COPYRIGHT 2010 ACS on STM
 IN 1-Propanol, 3,3'-[[4-[2-[[4-pyridyl]ethenyl]phenyl]imino]bis-
 MF C19 H24 N2 O2

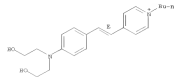


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHEMRS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridanum, 4-[[1(16)-2-[4-bis(2-hydroxyethyl)amino]phenyl]ethenyl]-1-butyl-
 r, tetraphenylborate(1-), salt (1413
 MF C24 H29 B . C21 H29 N2 O2
 CI

CH 1

Double bond geometry as shown.



CH 2



L21 214 ANHEMRS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Succinic acid, N-4-pyridyl
 MF C5 H5 B N O2
 CI



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L21 214 ANHEMS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridinium, 1-[3-[[4,4-bis(4-hydroxyphenyl)-1-oxopropyl]oxy]propyl]-4-[[2-cyano-2-[4-[[1-cyano-2-methoxy-2-oxoethyl]phenyl]ethoxy]phenyl]ethoxy]-, inner salt
MF C39 H35 N3 O5

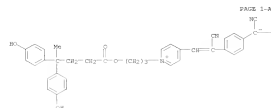


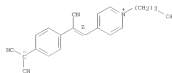
FIGURE 1-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHEMS REGISTRY COPYRIGHT 2010 ACS on STM
IN Benzoic acid, 5,5-bis(4-aminophenoxy)-, polymer with
5,5'-[[1-methylethylidene]bis(4,1-phenyleneoxy)]bis[1,3-indenofuranone], 7,5-bis[1,1-dimethylethyl]phenyl ester, ester with
4-[[1E]-2-cyano-2-[4-(diisopropenyl)phenyl]ethoxy]-1-(3-hydroxypropyl)pyridinium inner salt (DCI)
MF (C31 H20 O5 . C19 H16 N2 O4)x . n C20 H16 N4 O . n C14 H22 O

CH 1
Double bond geometry as shown.

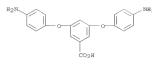


CH 2



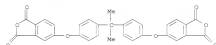
CH 3

CH 4

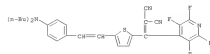


CH 5

L21 214 ANHEMS REGISTRY COPYRIGHT 2010 ACS on STM (Continued)



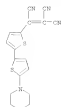
L21 214 ANHEMS REGISTRY COPYRIGHT 2010 ACS on STM
IN Propenedinitrile, 2-[[5-[2-[4-(diethylamino)phenyl]ethenyl]-2-thienyl][2,3,5,6-tetrafluoro-4-pyridinyl]methylene]-
MF C29 H28 F4 N4 S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

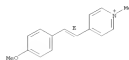
121 214 ANHEMS REGISTRY COPYRIGHT 2010 ACS on STM
 IN 3,5,2-Ethametricarbonitrile,
 2-[5'-[1-piperidinyl][2,2'-bithiophen]-5-yl]-
 MF C15 H14 N4 S2
 CN



PROPERTY DATA AVAILABLE IN THE 'PROF' FORMAT

121 214 ANHEMS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 4-[2-(4-methoxyphenyl)ethenyl]-1-methyl-, (E)-, salt with
 4-methylbenzenesulfonic acid (1:1) (PCI)
 MF C15 H16 N O - C7 H7 O2 S
 CN

1
 Double bond geometry as shown.



CN 2



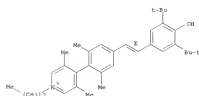
121 214 ANHEMS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridine, 4-ethenyl-,
 MF C7 H7 N
 CN



PROPERTY DATA AVAILABLE IN THE 'PROF' FORMAT

121 214 ANHEMS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 4-[4-[[12]-2-[3,5-bis(1,1-dimethylethyl)-4-hydroxyphenyl]ethenyl]-2,6-dimethylphenyl]-3,5-dimethyl-1-octyl-, iodide
 (1:1)
 MF C29 H56 N O - I
 CN

Double bond geometry as shown.



• 1-

10560670.trn

L21 214 ANHMER5 REGISTRY COPYRIGHT 2010 ACS on STM
 IN 2-propenoic acid, 2-methyl-, 2,2,2-trifluoroethyl ester, polymer with
 4-ethenylpyridine (PCI)
 MF (C11 H17 N - CF3 H7 F3 O2)a
 CI 1995

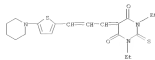
CN 1



CN 2



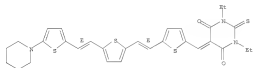
L21 214 ANHMER5 REGISTRY COPYRIGHT 2010 ACS on STM
 IN 4,6-[2H,5R]-Pyrimidinone, 1,3-dimethylidene-5-[3-[5-(1-piperidinyl)-2-thienyl]-2-propen-1-ylidene]-2-thioxo-
 MF C19 H15 N3 S2
 CI 1995



PROPERTY DATA AVAILABLE IN THE 'PAGE' FORMAT

L21 214 ANHMER5 REGISTRY COPYRIGHT 2010 ACS on STM
 IN 4,6-[1H,5S]-Pyrimidinone, 1,3-diethylidene-5-[[5-[2-[5-[2-[5-(1-piperidinyl)-2-thienyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]methylene]-2-thioxo-, [R,E]- (PCI)
 MF C26 H25 N3 S2
 CI 1995

Double bond geometry as shown.



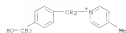
PROPERTY DATA AVAILABLE IN THE 'PAGE' FORMAT

L21 214 ANHMER5 REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 1-benzyl-4-methyl-
 MF C12 H10 N
 CI 1995

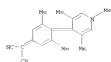


10560670.trn

L21 214 ANHEMEO REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridazinone, 1-[[4-(hydroxymethyl)phenyl]methyl]-4-methyl-
 MF C14 H16 N O

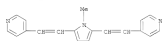


L21 214 ANHEMEO REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[[3,5-dimethyl-4-[[1,2,5-trimethyl-4(1H)-pyridonylidene)-2,5-cyclohexadien-1-ylidene]-
 MF C19 H19 N3
 CI COH



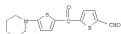
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHEMEO REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridine, 4,4'-[[1-methyl-2,5-pyrroledione-2,5-diylidene-2,1-ethenediyl]bis-
 (3CI)
 MF C19 H17 N3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHEMEO REGISTRY COPYRIGHT 2010 ACS on STM
 IN 2-Thiophenecarboxaldehyde, 5-[[[5-(1-piperidinyl)-2-thienyl]oxycarbonyl]-
 MF C15 H15 N O2 S2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L21 214 ANHEMRS REGISTRY COPYRIGHT 2010 ACS on STM
IN 6-Benzothiazolamine, 2-[(4-pyridyl)-
MF C12 H9 N1 S
C1 OAN



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

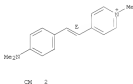
L21 214 ANHEMRS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridinium, 4-methyl-1-(phenylmethyl)-
MF C13 H14 N
C1 OAN



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHEMRS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridinium, 4-[[1[5]-2-[4-(dimethylamino)phenyl]ethenyl]-3-methyl-,
MF C14 H23 N2 . C12 H20 N O1 S
C1 OAN

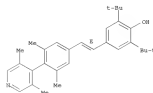
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHEMRS REGISTRY COPYRIGHT 2010 ACS on STM
IN Phenol;
2,6-bis[[1,1-dimethylethyl]-4-[[1[5]-2-[4-(3,5-dimethyl-4-pyridyl)-
3,5-diisopropyl]ethenyl]-
MF C31 H39 N O

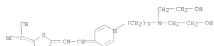
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

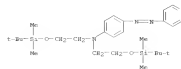
10560670.trn

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[5-[2-[3-[3-[[[a(2-hydroxyethyl)amino]propyl]-4(1H)-
 pyridinylidene]ethyldene]-2(5H)-thienylidene]-
 MF C14 H14 N4 O2 S
 CI COM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Benzenamine,
 N,N-bis[2-[[[1,1-dimethylethyl]dimethylsilyloxy]ethyl]-4-[2-
 (4-pyridinyl)diazenyl]-
 MF C27 H46 N4 O2 Si2

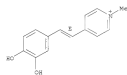


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 4-[2-[5,4-dihydroxyphenyl]ethenyl]-1-methyl-, (E)-, salt with
 4-methylbenzenesulfonic acid (1:1) (9CI)
 MF C14 H14 N O2 S C7 H7 O3 S

CH 1

Double bond geometry as shown.



CH 2



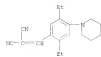
L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[1-methyl-4(1H)pyridinylidene)-
 MF C9 H7 N3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

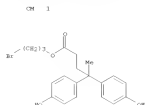
10560670.trn

121 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STM
IN Propanedinitrile, 2-[[2,5-diethyl-4-[[3-piperidyl]phenyl]methylene]-
MF C19 H23 N3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

121 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STM
IN Benzenesulfonamide acid, 4-hydroxy-γ-(4-hydroxyphenyl)-γ-methyl-,
3-bromopropyl ester, compd. with 4-methylpyridine (111) (PCI)
MF C20 H23 Br O4 . CH H N

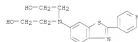


CH 2



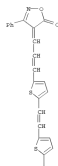
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

121 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STM
IN Bisabolol, 2,2'-[[2-[[4-pyridinyl]-6-benzothiazolyl]imino]bis-
MF C16 H17 N3 O2 S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

121 214 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STM
IN 5-[4(R)-isoxazole-3-phenyl-4-[[3-[5-[2-[5-(1-piperidyl)-2-thienyl]ethenyl]-2-thienyl]-2-propen-1-ylidene]-
MF C27 H24 N2 O2 S2



PAGE 1-A



PAGE 2-A

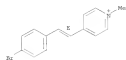
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L21 214 ANHMER8 REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 4-([2-(4-bromophenyl)ethenyl]-1-methyl-, (E)-, salt with
 MF 4-methylbenzenesulfonic acid (1:1) (9CI)
 CI4 R13 R6 N C7 R7 O3 2

CH 3

Double bond geometry as shown.



CH 2

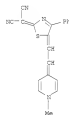


L21 214 ANHMER8 REGISTRY COPYRIGHT 2010 ACS on STM
 IN Benzenamine, N,N-dimethyl-4-([2-(4-pyridinyl)ethenyl]-
 MF C15 H16 N2
 CI COM



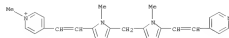
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHMER8 REGISTRY COPYRIGHT 2010 ACS on STM
 IN Prepared:antirrhiz, 2-[5-([2-(1-methyl-4-[1H]-pyridinylidene)ethylidene]-4-
 phenyl-2[5H]-thiazolylidene)-
 MF C19 H24 N4 S



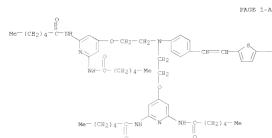
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHMER8 REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 1-methyl-4-([2-([1-methyl-5-[2-(4-
 pyridinyl)ethenyl]-1H-pyrrol-2-yl]methyl]-1H-pyrrol-2-yl]ethenyl)-
 MF C26 H27 N4
 CI COM



10560670.trn

L21 214 ANMEERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Benzanamide, N₄H⁺,H⁺,H⁺,H⁺,H⁺-[1,4-[2-15-[1,3-diethyltetrahydro-4,6-dioxo-2-thiuro-5(14)-pyrimidinylidene)methyl]-2-thienyl]ethenyl]phenyl]imidazole 7,1-methanediyl-oxo-4,2,6-pyridinetriyl]]]tetraakis- (9C2)
 MF C59 H79 N9 O8 S2

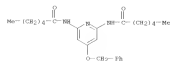


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANMEERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridine, 1-[2-oxo-4-ethyl-4-[[4-(diethylamino)phenyl]ethenyl]-5-ylidene]ethenyl]
 MF C44 H72 N2 O2

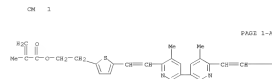


L21 214 ANMEERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Benzanamide, N₄H⁺,H⁺,H⁺,H⁺,H⁺-[4-(phenylmethoxy)-2,6-pyridinediyl]bis-
 MF C24 H23 N3 O3



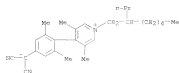
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANMEERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN 2-Frogemole acid, 2-methyl-, 2-[5-[2-[5-[5,5'-dimethyl-6'-[2-(5-pentyl-2-thienyl)ethenyl]][3,3'-bipyridinyl]-6-yl]ethenyl]-2-thienyl]ethyl ester, homopolymer
 MF C35 H38 N2 O2 S2x
 CI VMS



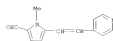
10560670.trn

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridinium, 4-(4-(dimethylamino)-2,6-dimethylphenyl)-3,5-dimethyl-1-(2-propylheptyl)-, inner salt
MF C28 H37 N3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN 18-Pyrrole-2-carboxaldehyde, 1-methyl-5-[2-(4-pyridinyl)ethenyl]-
MF C13 H12 N2 O

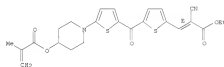


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN 2-Propenoic acid, 2-cyano-3-[[5-[[5-[4-[[2-methyl-1-oxo-2-propenyl]oxy]-1-piperidinyl]-2-thienyl]oxy]thienyl]-2-thienyl], ethyl ester, [5], polymer
with 31-(18-octadecan-1-yl)undecyl 2-methyl-2-propenoate (H2)
MF C27 H35 N O2 . C24 H24 N2 O5 S2)a
CI PMS

CH 1

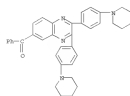
Double bond geometry as shown.



CH 2



L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN Methanone, [2,2-bis[4-(1-piperidinyl)phenyl]-6-quinolalyl]phenyl-
MF C37 H36 N4 O



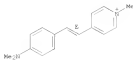
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridinium, 4-([1E]-2-[4-(dimethylamino)phenyl]ethenyl)-3-methyl-, salt
with 4-methylbenzenesulfonic acid (1:1)
MF C16 H19 N3 . C1 S7 O3 S
CI COM

CN 1

Double bond geometry as shown.

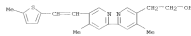


CN 2



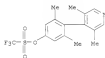
PROPERTY DATA AVAILABLE IN THE 'PDB' FORMAT

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN [2,2'-Bipyridine]-5-ethanol, 4,4'-dimethyl-5'-[2-(5-methyl-2-thienylethenyl)-
thienylethenyl]-
MF C25 H22 N2 O S



PROPERTY DATA AVAILABLE IN THE 'PDB' FORMAT

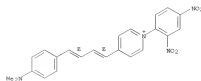
L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN Methanesulfonic acid, 1,1,1-trifluoro-,
4-[3,5-dimethyl-4-pyridinyl]-3,5-dimethylphenyl ester
MF C16 H26 F3 N O3 S
CI COM



PROPERTY DATA AVAILABLE IN THE 'PDB' FORMAT

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridinium, 4-([1E,3E]-4-[4-(dimethylamino)phenyl]-1,3-bis(2,4,6-trinitrophenyl)-2-
ethenyl)-3-methyl-, salt
MF C25 H22 N4 O4
CI COM

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PDB' FORMAT

10560670.trn

L21 214 ANHEHEE REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridine, 4-([2-[1-methyl-1H-pyrrol-2-yl]ethenyl]-
MF C12 H12 N2
C1 CON



PROPERTY DATA AVAILABLE IN THE 'PROB' FORMAT

L21 214 ANHEHEE REGISTRY COPYRIGHT 2010 ACS on STM
IN 2-Pyridinamine, 5-nitro-, (2S,3S)-2,3-dihydrobutanedioate (1:1)
MF C5 H5 N3 O2 . C4 H6 O6
C1 CON



CH 2
Absolute stereochemistry.



PROPERTY DATA AVAILABLE IN THE 'PROB' FORMAT

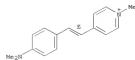
L21 214 ANHEHEE REGISTRY COPYRIGHT 2010 ACS on STM
IN Lithium, (2,3,5,6-tetrafluoro-4-pyridinyl)-
MF C5 F4 Li N
C1 CON



PROPERTY DATA AVAILABLE IN THE 'PROB' FORMAT

L21 214 ANHEHEE REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridinium, 4-([1R]-2-[[4-(dimethylamino)phenyl]ethenyl]-1-methyl-,
2-naphthalenesulfonate (1:1)
MF C16 H13 N2 . C10 H7 O3 S
C1 CON

CH 1
Double bond geometry as shown.



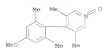
CH 2



PROPERTY DATA AVAILABLE IN THE 'PROB' FORMAT

10560670.trn

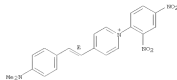
L21 214 ANHMER REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridium, 4-[(4-methoxy-2,6-dimethylphenyl)-3,5-dimethyl-, 1-oxide
 MF C14 H19 N O2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHMER REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridium, 4-[(1R)-2-[4-(dimethylamino)phenyl]ethenyl]-1-[2,4-dinitrophenyl]-
 MF C21 H19 N4 O4
 CI OH

Double bond geometry as shown.

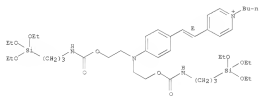


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHMER REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridium,
 4-[2-[4-[bis(9,9-dimethoxy-6-oxo-3,10-dioxo-5-aza-9-oxadodec-3-ylidene)phenyl]ethenyl]-1-oxyl-, (R)-, tetraperchlorate(1-)] (PCI)
 MF C42 H71 N4 O10 S12 - C24 R20 B

CH 1

Double bond geometry as shown.



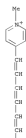
CH 2



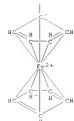
L21 214 ANHMER REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridium, 4-[6-(ferrocenyl-1,3,5-hexatrienyl)-1-methyl-, (E,E,E)-, salt
 with 4-methylbenzenesulfonic acid (1:1) (PCI)
 MF C32 H22 Fe S - C7 H7 O3 S

CH 1

PAGE 1-A



PAGE 2-A



CH 2

10560670.trn

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM (Continued)

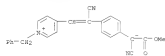


L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN 2-Pyridinamine, 3-nitro-
MF C5 H5 N3 O2
CI CCM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

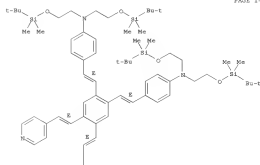
L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridazinone,
4-[2-cyano-2-[4-(1-cyano-2-methoxy-2-oxoethyl)phenyl]ethenyl]-
1-(phenylethyl)-, inner salt
MF C25 H29 N3 O2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN Benzoxamine,
4,4'-[[4,5-bis[[15]-2-(4-pyridyl)ethenyl]-1,2-phenylene]di-
(25)-2,3-ethenediyl]bis[2-methyl-2-[[11,3-
dimethylethyl]dimethylsilyloxy]ethyl]- (HCl)
MF C89 H122 N4 O4 Si4

Double bond geometry as shown.



PAGE 1-A

PAGE 2-A



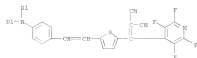
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

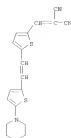
L21 214 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propargilnitrile, [15-2-[4-[bis(methylphenyl)amino]phenyl]ethenyl]-2-
 thienyl[12,3,5,6-tetrafluoro-4-pyridinyl)methylene]- (PCI)
 MF C41 H34 F4 N4 S
 CI 3D6



2 (D1-Bu-n)



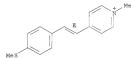
L21 214 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propargilnitrile, 2-[15-2-[5-[1-piperidinyl]-2-thienyl]ethenyl]-2-
 thienyl[methylene]-
 MF C19 H17 N3 S2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridine, 1-methyl-4-[2-[4-(methylthio)phenyl]ethenyl]-, (E)-, salt
 with
 4-methylbenzenesulfonic acid (1:1) (PCI)
 MF C15 H16 N S . C7 H7 O2 S
 CH 3

Double bond geometry as shown.



CH 2



L21 214 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridine
 MF C5 H5 N
 CI COW, RPS



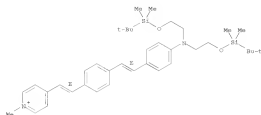
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L21 214 ANHEMBO REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridazinum, 4-([1R]-2-[4-([1R]-2-[4-[Bu-([1,2-dimethylethyl]dimethylsilyl)oxy]ethyl)amino]phenyl]ethenyl)-3-methyl-, 1,1,1-trifluoroethanesulfonate (1:1)
MF C28 H37 N5 O3 S12 . C F3 O3 S

CH 1

Double bond geometry as shown.

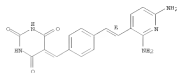


CH 2



L21 214 ANHEMBO REGISTRY COPYRIGHT 2010 ACS on STM
IN 2,4,6-(1R,2R,5R)-Pyrimidinotriazone, 5-([4-([1R]-2-[2,6-diamino-3-pyridinyl]ethenyl]phenyl]methylenes)-
MF C18 H15 N5 O3

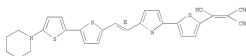
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHEMBO REGISTRY COPYRIGHT 2010 ACS on STM
IN 1,1,1-tetrachloroethane-2-thiol, 2-[5'-([1R]-2-[5'-([3-piperidinyl]2,2'-bithiophen)-5-yl]ethenyl)[2,2'-bithiophen]-5-yl]-
MF C28 H20 S4 Cl4

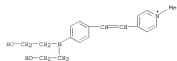
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHEMBO REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridazinum, 4-[2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-1-methyl-, 4-methylbenzenesulfonate (1:1)
MF C18 H23 N5 O3 . CT BT O3 S
CI COM

CH 1

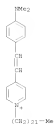


CH 2



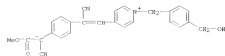
10560670.trn

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 4-[(2-[4-(dimethylamino)phenyl]ethenyl)-1-dimethyl-, bromide
 [111]
 MF C17 H21 N2 . Br
 CI COM

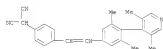


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 4-[(2-cyano-2-methoxy-2-acetylphenylethenyl)-1-[4-(hydroxyethyl)phenyl]ethyl]-, inner salt
 MF C28 H21 N3 O3



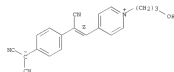
L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Preparednitrile, 3-[6-[2-[4-(3,5-dimethyl-4-pyridinyl)-3,5-dimethylphenyl]ethenyl]phenyl]-
 MF C18 H23 N3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 4-[(1[2]-2-cyano-2-[4-(diisopropylthiophenyl)ethenyl]-1-(3-hydroxypropyl)-, inner salt
 MF C30 H35 N4 O
 CI COM

Double bond geometry as shown.

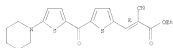


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

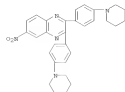
L21 214 ANMEER8 REGISTRY COPYRIGHT 2010 ACS on STM
 IN 2-Propenoic acid, 2-cyano-3-[[5-[[5-(1-piperidinyl)-2-thienyl]carbonyl]-2-thienyl]-, ethyl ester, (2E)-
 MF C25 H29 N5 O3 S2
 CI

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

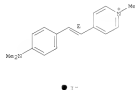
L21 214 ANMEER8 REGISTRY COPYRIGHT 2010 ACS on STM
 IN Quinoxaline, 6-nitro-2,3-bis[4-(1-piperidinyl)phenyl]-
 MF C20 H21 N5 O2
 CI



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANMEER8 REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 4-[[1E]-2-[[4-(dimethylamino)phenyl]ethenyl]-3-methyl-, iodide
 MF C14 H19 N2 . I
 CI OCN

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANMEER8 REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propionedinitrile, 2-[4-(4-pyridyl)phenyl], ammonium (1:1)
 MF C14 H8 N2 . Na
 CI

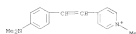


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L21 214 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridinium, 4-[[2-[4-(dimethylamino)phenyl]ethenyl]-1-methyl-,
4-pentylbenzenesulfonate (1:1)
MF C16 H19 N2 CT 07 O3 S

CN 1



CN 2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

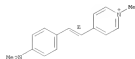
L21 214 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridinium, 4-[[1(1)-2-[4-(dimethylamino)phenyl]ethenyl]-1-methyl-,
2,4-dimethylbenzenesulfonate (1:1)
MF C16 H19 N2 CT 05 O3 S

CN 1



CN 2

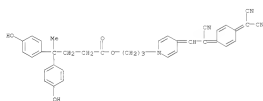
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
IN Benzenesulfonate acid, 4-(hydroxy-γ-(4-hydroxyphenyl)-γ-methyl-,
3-[4-[2-cyano-2-[4-(dimethylamino)phenyl]-2,5-cyclohexadien-3-ylidene]ethyl]idenyl-1-(6H-pyridinyl)propyl ester, polymer with
1,3-bis(mediacarbonyl dichloride) (9CI)
MF C27 H32 N4 O4 CT 04 CB 04 C12 O2 S
CI PMS

CN 1

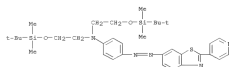


CN 2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

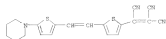
L21 214 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
IN Benzenamine,
N,N-bis[2-[[[1,1-dimethylethyl]dimethylsilyl]oxy]ethyl]-4-[2-
[[2-(4-pyridinyl)-6-benzothiazolonyl]idameryl]-
MF C34 H49 N5 O2 S S12



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN 3,5,2-Ethoxycarbonyl,
 2-[5-[5-[5-(1-piperidinyl)-2-thienyl]ethenyl]-
 2-thienyl]-
 MF C20 H24 N4 O2

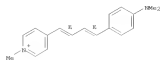


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridazin, 4-[(1R,3R)-4-[4-(dimethylamino)phenyl]-1,3-butadiene-1-yl]-1-methyl-, 4-methylbenzenesulfonate (111)
 MF C18 H21 N2 . C7 H7 O3 S

CN 1

Double bond geometry as shown.



CN 2

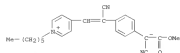


L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN 4-Pyridazinone, N,N-dimethyl-
 MF C7 H10 N2
 C2 CN



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridazin, 4-[2-cyano-2-[4-(1-cyano-3-methoxy-2-methylphenyl)ethenyl]-1-phenyl-, inner salt
 MF C24 H25 N3 O2

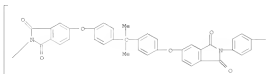


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

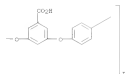
10560670.trn

L21 214 ANDREWS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Poly[1,3-dihydro-1,3-dioxo-2H-isoindole-2,5-diyloxy-1,4-phenylene (1-naphthylethylidene)-1,4-phenyleneoxy (7,3-dihydro-1,3-dioxo-2H-isoindole-5,2-diylo)-1,4-phenyleneoxy (5-oxabicy-1,3-phenyleneoxy)-3,4-phenylene],
 2,1-bis[1,1'-dimethylbiphenyl] ether, ester with
 4-[(11E)-2-cyano-2-[4-(disipanomethylphenyl)ethenyl]-1-(3-hydroxypropyl)pyridinium dimer salt (DC2)
 MW C30 H32 N2 O4S . x C20 H16 N4 O . x C14 H22 O
 CN 1

PAGE 1-A



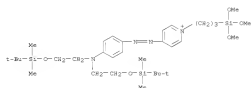
PAGE 1-B



CN 2

Double bond geometry as shown.

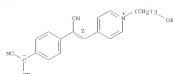
L21 214 ANDREWS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridine, 4-[5-[4-[bis[2-[[[1,2-dimethylbiphenyl]dimethylsilyloxy]amino]phenyl]diazonyl]-1-[3-(trimethylsilyl)propyl]]-], iodide (1:1)
 MW C33 H41 N4 O3 Si3 . 1



• 1-

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

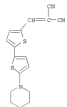
L21 214 ANDREWS REGISTRY COPYRIGHT 2010 ACS on STM (Continued)



CN 3



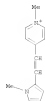
L21 214 ANDREWS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propionitrile,
 2-[[5'-[1-piperidinyl][2,2'-bithiophen]-5-yl]methylene]-
 MW C17 H15 N3 S2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L21 214 ANHEMERS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridinium, 1-methyl-4-[[2-[[1-methyl-1H-pyrrrol-2-yl]ethenyl]-
MF C13 H15 N2
C2 OAN



L21 214 ANHEMERS REGISTRY COPYRIGHT 2010 ACS on STM
IN 4-Pyridinecarboxylic acid
MF C6 H5 N O2
C1 COM



***PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

L21 214 ANHEMERS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridine, 4-[[2-[[1-methyl-1H-pyrrrol-2-yl]ethenyl]]-,
mono[tetrafluoroborate(1-)] [SC1]
MF C13 H12 N2 . B F4 . B

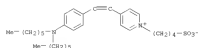


CH 2



• H⁺

L21 214 ANHEMERS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridinium, 4-[[2-[[4-(diisobutylamino)phenyl]ethynyl]-1-(4-sulfobutyl)-,
inner
salt
MF C29 H42 N2 O3 S



***PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

10560670.trn

L21 214 ANHEMRS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 4-[[2-[4-[[3-[[2-hydroxyethyl]amino]phenyl]ethenyl]-1-methyl-,
 salt with 4-methylbenzenesulfonic acid (1:1)], polymer with allistic acid
 [44104], tetraethyl ether and transbut-2-enoxy[2-isopropenyl]alkane [PC1]
 MF C18 H23 N2 O2 . C10 H21 N O4 S1 . C9 H20 O4 S1 . C7 H7 O3 S1x
 CI
 CT

CH 1

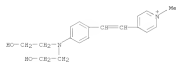


CH 2



CH 3

CH 4

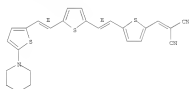


CH 5



L21 214 ANHEMRS REGISTRY COPYRIGHT 2010 ACS on STM
 IN 4-Pyridylamine, N,N-dimethyl-, 4-methylbenzenesulfonate (1:1)
 MF C7 H10 N2 . C7 H9 O3 S
 C18 H21 N2 O2

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHEMRS REGISTRY COPYRIGHT 2010 ACS on STM (Cont. saved)

CH 1



CH 2



CH 3

CH 4



CH 5



L21 214 ANHEMRS REGISTRY COPYRIGHT 2010 ACS on STM
 IN 4-Pyridylamine, N,N-dimethyl-, 4-methylbenzenesulfonate (1:1)
 MF C7 H10 N2 . C7 H9 O3 S

CH 1



CH 2

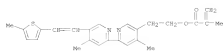


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

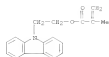
10560670.trn

L21 214 ANHMERZ EMBISTAY COPYRIGHT 2010 ACS on STM
 IN 2-Propenoic acid, 2-methyl-, 2-[9-(carbazol-9-yl)ethyl ester, polymer
 with
 2-[4,4'-dimethyl-5-[2-[(5-methyl-2-thienyl)ethenyl][2,2'-bipyridin]-5-
 yl]ethyl 2-methyl-2-propenoate
 MF C15 H16 H2 O2 S . C15 H17 N O2)x
 CI 1965

CH 1



CH 2



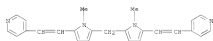
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHMERZ EMBISTAY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[4-(7,5-dimethyl-4-pyridinyl)-3,5-dimethylphenyl]-
 MF C18 H17 N3



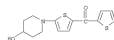
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHMERZ EMBISTAY COPYRIGHT 2010 ACS on STM
 IN Pyridine, 4,4'-[methyl(2-methyl-2-propenoate)-5,2-diyl]-2,1-
 ethenediyl]]bis- (9CI)
 MF C15 H14 N4



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

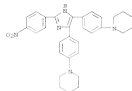
L21 214 ANHMERZ EMBISTAY COPYRIGHT 2010 ACS on STM
 IN Methanone, [5-(4-hydroxy-1-piperidinyl)-2-thienyl]-2-thienyl-
 MF C14 H15 N O2 S2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

121 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN Piperidine, 1,1'-[2-[[2-(4-nitrophenyl)-1H-imidazole-4,5-diyl]di-4,1-
phenylene]bis-(9CI)]
MF C17 H17 N5 O2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

121 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridinium, 1-[2-(methoxymethyl)-6-methyl-, bromide (1:1)
MF C9 H12 N O2 . Br



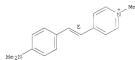
• Br⁻

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

121 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridinium, 4-[[[3,5-bis(4-(dimethylamino)phenyl)ethenyl]-3-methyl-,
4-ethoxybenzenesulfonate (1:1)]
MF C16 H23 N2 . OS(=O)(=O)c1ccc(OC)cc1

CH 1

Double bond geometry as shown.



CH 2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

121 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN Phenol, 4-(3,5-dimethyl-4-pyridinyl)-5,5-dimethyl-
MF C15 H17 N O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridinium, 1-(4-methoxyphenyl)-2,4,6-triphenyl-, tetrafluoroborate(1-)
(1:1)
MF C26 H24 N O 2 F4

CH 1

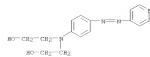


CH 2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN Ethanol, 2,2'-[14-[2-(4-pyridinyl)diazene]phenyl]amino]bis-
MF C15 H18 N4 O2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN Pyridinium, 4-[2-(4-methoxyphenyl)-1,3,5-benzotrienzyl]-1-methyl-,
(E,E,E)-,
Salt with 4-methylbenzenesulfonic acid (1:1) (9CI)
MF C19 H20 N O 2 S
CH 1

Double bond geometry as shown.



CH 2



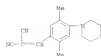
L21 214 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN 4-Piperidinol
MF C5 H11 N O
CI COW



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

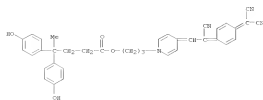
10560670.trn

L21 214 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrate, 2-[[2,5-dimethyl-4-[1-piperidinyl]phenyl]methylamino]-
 MF C17 H23 N2



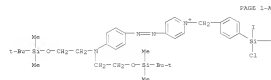
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Benzenesulfonate acid, 4-hydroxy-γ-(4-hydroxyphenyl)-γ-methyl-,
 3-[4-[2-cyano-2-[4-(dicyanomethylamino)-2,5-cyclohexadien-1-
 ylidene]ethylidene]-1-(4H-pyridinyl)propyl] ester
 MF C37 H32 N4 O4
 CI COW



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridine, 4-[[5-[[4-[[bis[2-[[[[1,2,2-dimethylethyl]dimethylsilyl]oxy]ethyl]amino]phenyl]diazanyl]-1-[[4-(dimethylamino)phenyl]methyl]-1,3,5-triazole]]-1-yl]phenyl]methyl]-, iside (1:1)
 MF C34 H52 Cl2 N 7 H4 O2 S13 . 1



PAGE 1-A

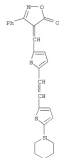
● 1 -

PAGE 1-B

— Cl

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L21 214 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN 5-[4H]-isoxazole,
 3-phenyl-4-[[15-[2-[1-piperidinyl]-2-thienyl]ethenyl]-
 2-thienyl]methylene]
 MF C25 H22 N2 O2 S2



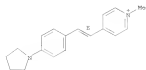
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L21 214 ANMEDS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Pyridinium, 1-methyl-4-[2-[4-(1-pyrrolidinyl)phenyl]ethenyl]-, (E)-, salt
 with 4-methylbenzenesulfonic acid (1:1) [PCI]
 MF C15 H16 N2 CT 87.03 g

CH 1

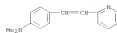
Double bond geometry as shown.



CH 2



L21 214 ANMEDS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Benzenamine, N,N-dimethyl-4-[2-(2-pyridinyl)ethenyl]-
 MF C15 H16 N2
 CT 208



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

ALL ANMEDS HAVE BEEN SCANNED

10560670.trn

=> s 121 and Propanedinitrile
40891 PROPANEDINITRILE
L22 21 L21 AND PROPANEDINITRILE

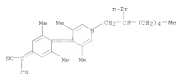
=> s 121 and dicyanomethylene
5559 DICYANOMETHYLENE
L23 5 L21 AND DICYANOMETHYLENE

=> s 122 or 123
L24 25 L22 OR L23

=> d scan 1-
'1-' IS NOT A VALID FORMAT FOR FILE 'REGISTRY'

10560670.trn

L24 25 ANHEMERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-{3,5-dimethyl-1-[2-propylthio]-4(1H)-
 pyridinylidene]-3,5-dimethyl-2,5-cyclohexadien-1-ylidene]-
 NF CN R17 N1



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

The following are valid formats:

Substance information can be displayed by requesting individual fields or predefined formats. The predefined substance formats are: (IN = CAS Registry Number)

REG - IN
 SM - Index Name, MF, and structure - no NN
 FIE - All substance data, except sequence data
 IE - FIE, but only IC names
 SQIE - IE, plus sequence data
 SQIE1 - Same as SQIE, but 3-letter amino acid codes are used
 SQ2 - Protein sequence data, includes NN
 SQ3 - Same as SQ2, but 3-letter amino acid codes are used
 SQ4 - Protein sequence name information, includes NN

EXFOP - Table of experimental properties

PFOP - Table of predicted properties

PROP - EXFOP, EXPO, PFOP

Any CA file format may be combined with any substance format to obtain CA references citing the substance. The substance formats must be cited first. The CA file predefined formats are:

ABS -- Abstract
 APPS -- Application and Priority Information
 EIB -- CA Accession Number, plus Bibliographic Data
 CAN -- CA Accession Number
 CIB -- CA Accession Number, plus Bibliographic Data (compressed)
 IND -- Index Data
 IPC -- International Patent Classification
 PATS -- PI, SO
 STD -- EIB, IPC, and HCL

L24 25 ANHEMERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

IAB -- ABS, indented, with text labels
 IIB -- EIB, indented, with text labels
 ISTD -- STD format, indented
 ORIB ----- IN, plus Bibliographic Data (original)
 ORIB ----- CIB, indented with text labels
 IIB ----- EIB, no citations
 EIB ----- IIB, no citations

The ALL format gives FIE EIB ABS IND IE, plus sequence data when it is available.
 The NCL format is the same as ALL plus SPEC.
 The ALL format is the same as ALL with EIB ABS and IND indented, with text labels.

For additional information, please consult the following help messages:

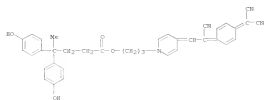
HELP DFIELDS -- To see a complete list of individual display fields.
 HELP FORMATS -- To see detailed descriptions of the predefined formats.
 HOW MANY MORE ANHEMERS DO YOU WISH TO SCOUT (I)read

10560670.trn

=> d scan

10560670.trn

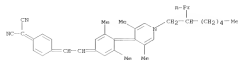
124 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Benzenesulfonamide acid, 4-hydroxy-γ-(4-hydroxyphenyl)-γ-methyl-, 1-[4-(2-methoxy-2-[4-(diacyanovinylidene)-2,5-cyclohexadien-1-ylidene]ethylidene)-1(4H)-pyridinyl]propyl ester
 MF C17 H32 N4 O4
 CI COH



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SEARCH? (1)11

124 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propionedinitrile, 2-[4-[2-[4-[3,5-dimethyl-1-[2-(propylheptyl)-4(1H)-pyridinylidene]-2,5-dimethyl-2,5-cyclohexadien-1-ylidene]ethylidene]-2,5-cyclohexadien-1-ylidene]-



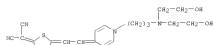
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

124 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propionedinitrile, 2-[2-[2-methyl-4(2H)-pyridinylidene]ethylidene]-
 MF C11 H9 N3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

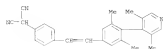
124 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propionedinitrile, 2-[5-[5-[1-[3-bis(2-hydroxyethylamino)propyl]-4(1H)-pyridinylidene]ethylidene]-2(5H)-thienylidene]-
 MF C21 H24 N4 O2 S
 CI COH



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

124 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[2-[4-(7,5-dimethyl-4-pyridinyl)-3,5-
 dimethylphenyl]ethoxy]phenyl]-
 MF C15 H15 N3
 CI C15 H15 N3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

124 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[3-piperidinyl]phenyl]methylethene]-
 MF C15 H15 N3
 CI C15 H15 N3

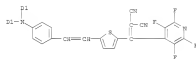


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

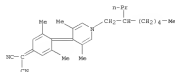
124 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, [[5-[2-[4-[[bis(4-ethoxyphenyl)amino]phenyl]ethenyl]-2-
 thienyl][2,5,6-tetrafluoro-4-pyridinyl]methylene]- (PCI)
 MF C41 H34 F4 N4 S
 CI C41 H34 F4 N4 S



2 (D1= Bu-n)



124 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[3,5-dimethyl-1-[5-propylheptyl]-4(1H)-
 pyridinylidene]-3,5-dimethyl-2,5-cyclohexadien-1-ylidene]-
 MF C28 H27 N3
 CI C28 H27 N3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

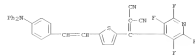
10560670.trn

L24 25 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[[1-methyl-4(1H)-pyridinylidene]-
 MF C9 H7 N3



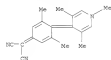
PROPERTY DATA AVAILABLE IN THE 'PROD' FORMAT

L24 25 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[[5-[2-[4-(diphenylamino)phenyl]ethenyl]-2-
 thienyl][2,3,5,6-tetrafluoro-4-pyridinyl)methylene]-
 MF C29 H18 F4 N4 S



PROPERTY DATA AVAILABLE IN THE 'PROD' FORMAT

L24 25 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[[3,5-dimethyl-4-[[1,3,5-trimethyl-4(1H)-
 pyridinylidene]-2,5-cyclohexadien-1-ylidene]-
 MF C19 H23 N3
 CI OCN



PROPERTY DATA AVAILABLE IN THE 'PROD' FORMAT

L24 25 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[[4-(4-pyridinyl)phenyl], ion(1-), sodium
 (1:1)
 MF C14 H8 N3 . Na



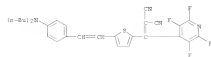
● Na⁺

PROPERTY DATA AVAILABLE IN THE 'PROD' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCOUT (1):11

10560670.trn

124 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[(3-[2-[4-(dimethylamino)phenyl]ethenyl]-2-thienyl][2,3,5,6-tetrafluoro-4-pyridinyl)methylene]-
 MF C18 H16 F4 N4 S



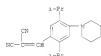
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

124 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-(7,5-dimethyl-4-pyridinyl)-3,5-dimethylphenyl]-
 MF C18 H17 N3



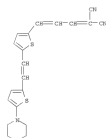
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

124 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[(2,5-bis(1-methylethyl)-4-(1-piperidinyl)phenyl)methylene]-
 MF C22 H27 N3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

124 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-[5-[2-[5-(1-piperidinyl)-2-thienyl]ethenyl]-2-thienyl]-3-propen-1-ylidene]-
 MF C22 H23 N3 S2

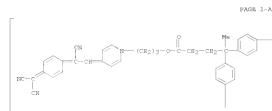


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

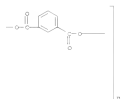
10560670.trn

124 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Poly[oxycarbonyl-1,3-phenylenecarbonyloxyl-2,4-phenylene[4-{3-[4-(2-
 cyano-2-[4-(diisotomethyl)-2,5-cyolobenzadiaz-1-ylidene]ethylidene]-
 1(4H)-pyridinyl]propyl]-1-methyl-4-isobutylidene]-1,4-phenylene] (PCI)
 MF [C45 H34 H4 O6]n
 CI PMS

RELATED POLYMERS AVAILABLE WITH POLYLINE

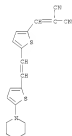


PAGE 1-B



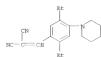
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

124 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propagandinitrile, 2-[5-{2-[5-[1-piperidinyl]-3-thienyl]ethenyl]-2-
 thienyl]methylene]-
 MF C19 H21 N3 S2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

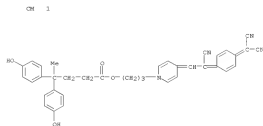
124 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propagandinitrile, 2-[2,5-dimethyl-4-(1-piperidinyl)phenyl]methylene]-
 MF C19 H23 N3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

124 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Benzenebutadiene acid, 4-hydroxy-2-(4-hydroxyphenyl)-y-
 methyl-, 3-[4-[2-cyano-2-[4-(diisotomethyl)-2,5-cyolobenzadiaz-1-
 ylidene]methylene]-1(4H)-pyridinyl]propyl ester, polymer with
 1,3-benzenedioxibenzyl dichloride (PCT)
 MF [C27 H32 H4 O4 . C2 H4 Cl2 O2]x
 CI PMS

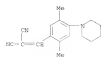
RELATED POLYMERS AVAILABLE WITH POLYLINE



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

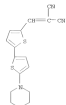
10560670.trn

124 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[[2,5-dimethyl-4-(1-piperidinyl)phenyl]methylene]-
 MF C17 R19 N2



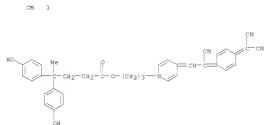
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

124 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[[5'-(1-piperidinyl)[2,2'-bithiophen]-5-yl]methylene]-
 MF C17 R15 N2 S2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

124 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Benzenesulfonamide acid, 4-hydroxy- γ -(4-hydroxyphenyl)- γ -methyl-, 3-[4-(2-cyano-2-[4-(dicyanomethylene)-2,5-cyclohexadien-1-ylidene]methylidene)-1,160-oxo-1,3,5-triazinyl]propyl ester, polymer with
 MF C27 R22 R4 O4 - CF R3 C13 O3)
 CI PMS

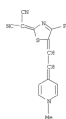


CH 2



HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):11

124 25 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[5-[2-(1-methyl-4(1H-pyrrolyl)idene)ethylidene]-4-phenyl-2(5H)-thiarylidene]-
 MF C20 R14 N4 S

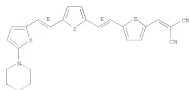


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L34 25 ANSWERS REQUESTED COPYRIGHT 2010 ACS on STN
DI Propanedinitrile, [15-[2-[5-[2-[5-[1-piperidyl]-2-thienyl]ethenyl]-
2-thienyl]ethenyl]-2-thienyl]methane]-, (R,R)- (9CI)
MF C25 H24 N4 S3

Double bond geometry as shown.



SEQUENT DATA AVAILABLE IN THE 'SEQP' FORMAT

ALL ANSWERS HAVE BEEN SOURCED

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=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

L1 STRUCTURE UPLOADED

L2 0 S L1

L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010

L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010

L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010

L6 172 SEA L5

L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010

L8 0 S OTOPHORE

L9 1 S OPTOPHORE

L10 0 S L3 AND L9

L11 12 S L4 OR L9

L12 26 S ELECTRO-OPTIC CHROMOPHORES

L13 0 S ELECTROPTIC CHROMOPHORES

L14 27 S ELECTROOPTIC CHROMOPHORES

L15 11072 S ELECTROOPTIC

L16 660 S L15 AND CHROMOPHORE

L17 679 S L12 OR L14 OR L16

FILE 'REGISTRY' ENTERED AT 15:04:07 ON 07 JUN 2010

L18 269403 S C6N/RF

FILE 'CAPLUS' ENTERED AT 15:04:59 ON 07 JUN 2010

L19 TRA L17 1- RN : 3023 TERMS

FILE 'REGISTRY' ENTERED AT 15:05:14 ON 07 JUN 2010

L20 3023 SEA L19

L21 214 S L20 AND C5N/RF

L22 21 S L21 AND PROPANEDINITRILE

L23 5 S L21 AND DICYANOMETHYLENE

L24 25 S L22 OR L23

=> s l24 not l3

L25 25 L24 NOT L3

=> file caplus

FILE 'CAPLUS' ENTERED AT 15:14:48 ON 07 JUN 2010

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FILE COVERS 1907 - 7 Jun 2010 VOL 152 ISS 24
FILE LAST UPDATED: 6 Jun 2010 (20100606/ED)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Apr 2010
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Apr 2010

Caplus now includes complete International Patent Classification (IPC) reclassification data for the second quarter of 2010.

CAS Information Use Policies apply and are available at:

<http://www.cas.org/legal/infopolicy.html>

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s l25
L26 99 L25

=> file caplus
FILE 'CAPLUS' ENTERED AT 15:15:01 ON 07 JUN 2010
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=> file reg

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STRUCTURE FILE UPDATES: 3 JUN 2010 HIGHEST RN 1226953-63-4
DICTIONARY FILE UPDATES: 3 JUN 2010 HIGHEST RN 1226953-63-4

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH January 8, 2010.

Please note that search-term pricing does apply when conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stdnoc/properties.html>

=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

L1 STRUCTURE UPLOADED
L2 0 S L1
L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010

L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010

L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010

L6 172 SEA L5
L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010

L8 0 S OTOPHORE

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L9 1 S OPTOPHORE
L10 0 S L3 AND L9
L11 12 S L4 OR L9
L12 26 S ELECTRO-OPTIC CHROMOPHORES
L13 0 S ELECTROPTIC CHROMOPHORES
L14 27 S ELECTROOPTIC CHROMOPHORES
L15 11072 S ELECTROOPTIC
L16 660 S L15 AND CHROMOPHORE
L17 679 S L12 OR L14 OR L16

FILE 'REGISTRY' ENTERED AT 15:04:07 ON 07 JUN 2010
L18 269403 S C6N/RF

FILE 'CAPLUS' ENTERED AT 15:04:59 ON 07 JUN 2010
L19 TRA L17 1- RN : 3023 TERMS

FILE 'REGISTRY' ENTERED AT 15:05:14 ON 07 JUN 2010
L20 3023 SEA L19
L21 214 S L20 AND C5N/RF
L22 21 S L21 AND PROPANEDINITRILE
L23 5 S L21 AND DICYANOMETHYLENE
L24 25 S L22 OR L23
L25 25 S L24 NOT L3

FILE 'CAPLUS' ENTERED AT 15:14:48 ON 07 JUN 2010
L26 99 S L25

FILE 'CAPLUS' ENTERED AT 15:15:01 ON 07 JUN 2010

FILE 'REGISTRY' ENTERED AT 15:16:51 ON 07 JUN 2010

=> analyze l25
ENTER ANSWER NUMBER OR RANGE (1-):1-
ENTER DISPLAY CODE (CHEM) OR ?:end

=> help sfields

The searchable fields in the REGISTRY File for general terms, nomenclature-based terms, terms derived from molecular formulas, and property data terms are listed below. If you do not specify a field, your term will be searched in the Basic Index, which contains all name segments, collective index codes, and molecular formula fragments.

CAS Registry Numbers may also be entered without a field code. The system will automatically append /RN to the Registry Numbers before searching them. Registry Numbers containing truncation or character masking must be searched in the /RN field.

Both left and right truncation (SLART) may be used in the /CNS, /NTE, and /ENTE search fields in the REGISTRY File. A term with left truncation must contain at least four characters, for example, S ?CYAN?/CNS. A term with left truncation will retrieve only terms that have at least one alphabetic character, for example, S ?1040/CNS will retrieve C1040/CNS but not 21040/CNS or 1040/CNS.

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Numeric fields may be searched as single point values, ranges, or with numeric operators, e.g., 12/S, 200-250/FW, NC >= 3.

Material Composition (MAC) may be searched with both text terms for components and numeric terms for composition. For further information, enter HELP MAC at an arrow prompt (=>).

FIELD NAME	FIELD QUALIFIER
Basic Index	/BI (or none)
CAS Registry Number Locator	/LC
CAS Registry Number	/RN
Class Identifier	/CI
Component Registry Number	/CRN
Definition	/DEF
Editor Note	/ENTE
Entry Date	/ED (numeric)
Field Availability	/FA
File Segment	/FS
Number of References in the CA File	/REF.CA (numeric)
Number of References in the CA File for non-specific derivatives	/REF.CAD (numeric)
Number of References in the CApplus File	/REF.CAPLUS (numeric)
Polymer Class Term	/PCT
Polymer Class Term Count	/PCT.CNT (numeric)
Source of Registration	/SR
Update Date	/UP (numeric)

Nomenclature Fields

Chemical Name	/CN
Chemical Name Segment	/CNS
Heading Parent	/HP
Index Name Segment - Heading Parent	/INS.HP
Index Name Segment - Non-Heading Parent	/INS.NHP
Other Name Segment	/ONS

Molecular Formula Fields

Atom Count	/ATC (numeric)
Element Count	/ELC (numeric)
Element Count for Substance	/ELC.SUB (numeric)
Element Formula	/ELF
Element Ratio, xx (xx = CH, CN, CO, HC, HN, HO, NC, NH, NO, OC, OH, ON)	/ELR.xx (numeric)
Element Symbol	/ELS
Element Symbol for Multicomponent Formula	/ELS.MCF
Formula Weight	/FW (numeric)
Material Composition	/MAC (mixed)
Molecular Formula	/MF
Number of Components	/NC (numeric)

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Periodic Group	/PG
Relative Composition	/RC
Specific Element Counts	/CU, /NI, etc.(numeric)

The Element Formula (ELF) field requires spaces between the elements in the formula, e.g., => S C H N O/ELF. The Molecular Formula (MF) field may be entered with or without spaces. Formula fragments searched in the Basic Index must be entered without spaces.

CAplus Document Type and Super Roles Search Fields	Search Field
---	--------------

Document type	/DT.CA
Super roles for specific substances	/RL
Super roles for non-specific derivatives	/RLD
Super roles for specific substances and non-specific derivatives	/RLS
Super roles for specific substances from patents	/RL.P
Super roles for non-specific derivatives from patents	/RLD.P
Super roles for specific substances and non-specific derivatives from patents	/RLS.P
Super roles for specific substances from non-patent documents	/RL.NP
Super roles for non-specific derivatives from non-patent documents	/RLD.NP
Super roles for specific substances and non-specific derivatives from non-patent documents	/RLS.NP

REGISTRY contains property data and related information in the following search fields. Unless indicated otherwise in footnote (1), property search fields may be searched using numeric operators or ranges.

Field Name	Search Field	Default Unit
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Bioconcentration Factor	/BCF	none
Bioconcentration Factor pH	/BCF.PH	none
Bioconcentration Factor Temp.	/BCF.T	deg C
Boiling Point	/BP	deg C
Boiling Point Pressure	/BP.P	Torr
Density	/DEN	g/cm**3
Density Pressure	/DEN.P	Torr
Density Temperature	/DEN.T	deg C
Electric Conductance	/ECON	Siemens
Electric Conductance Temperature	/ECON.T	deg C
Electric Conductivity	/ECND	S/cm
Electric Conductivity Temperature	/ECND.T	deg C

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Electric Resistance	/ERES	ohm
Electric Resistance Temperature	/ERES.T	deg C
Electric Resistivity	/EREST	ohm*cm
Electric Resistivity Temperature	/EREST.T	deg C
Enthalpy of Vaporization	/HVAP	kJ/mol
Enthalpy of Vaporization Pressure	/HVAP.P	Torr
Experimental Properties (1)	/EPROPS	none
Experimental Property Tags (2)	/ETAG	none
Flash Point	/FP	deg C
Freely Rotatable Bonds	/FRB	none
Glass Transition Temperature	/TG	deg C
Hydrogen Acceptors	/HAC	none
Hydrogen Donors	/HD	none
Hydrogen Donor/Acceptor Sum	/HDAS	none
Koc (Organic Carbon Adsorption Coeff.	/KOC	none
Koc pH	/KOC.PH	none
Koc Temperature	/KOC.T	deg C
LogD	/LOGD	none
LogD pH	/LOGD.PH	none
LogD Temperature	/LOGD.T	none
LogP	/LOGP	none
LogP Temperature	/LOGP.T	deg C
Mass Intrinsic Solubility	/ISLB.MASS	g/L
Mass Solubility	/SLB.MASS	g/L
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Magnetic Moment	/MM	muB
Magnetic Moment Temperature	/MM.T	K
Median Lethal Dose	/LD50	mg/kg
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Median Lethal Dose Route of Administration	/LD50.RTE	none
Melting Point	/MP	deg C
Melting Point Pressure	/MP.P	Torr
Melting Point Solvent	/MP.SOL	none
Molar Intrinsic Solubility	/ISLB.MOL	mol/L
Molar Solubility	/SLB.MOL	mol/L
Molar Solubility pH	/SLB.PH	mol/L
Molar Volume	/MVOL	cm**3/mol
Molar Volume Temperature	/MVOL.T	deg C
Molar Volume Pressure	/MVOL.P	Torr
Molecular Weight	/MW	none
Optical Rotatory Power	/ORP	deg
Optical Rotatory Power Concentration	/ORP.C	g/100mL
Optical Rotatory Power Temperature	/ORP.T	deg C
Optical Rotatory Power Pathlength	/ORP.LEN	dm
Optical Rotatory Power Solvent	/ORP.SOL	none
Optical Rotatory Power Wavelength	/ORP.W	nm
pKa	/PKA	none
pKa Temperature	/PKA.T	deg C
pKa Type	/PKA.TYP	none
Polar Surface Area	/PSA	A**2
		ngstrom**2)
Property Note (1)	/PNT	none
Property Source (1)	/PSO	none
Property Type (1)	/PTYP	none
Reference Accession Number in CA (1)	/RAN.CA	none

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Refractive Index	/RI	none
Refractive Index Temperature	/RI.T	deg C
Refractive Index Wavelength	/RI.W	nm
Spectra (1)	/SPEC	none
Tensile Strength	/TS	MPa
Tensile Strength Temperature	/TS.T	deg C
Uncertainty Range	/UR	none
Vapor Pressure	/VP	Torr
Vapor Pressure Temperature	/VP.T	deg C

- (1) Field containing text terms which are not searchable with numeric operators or ranges.
- (2) For a list of the tagged properties, refer to REGISTRY: Tagged Experimental Properties at:

www.cas.org/support/stngen/stndoc/properties.html

For information on the sources and definitions of properties, refer to Property Searching in REGISTRY:

www.cas.org/support/stngen/stndoc/properties.html

Enter HELP ROLES at an arrow prompt in the file for a list of Caplus super roles that are searchable in REGISTRY.

Additional information on search or display fields is available in the following messages:

HELP SRINGS	- list of ring data search fields
HELP SSQ	- list of sequence search fields
HELP DFIELDS	- list of display field codes

```
=> s l25 and 5<=ref.caplus
      1484320 5<=REF.CAPLUS
L27      6 L25 AND 5<=REF.CAPLUS
```

```
=> s l25 not l27
L28      19 L25 NOT L27
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```
=> file caplus
FILE 'CAPLUS' ENTERED AT 15:18:50 ON 07 JUN 2010
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FILE COVERS 1907 - 7 Jun 2010 VOL 152 ISS 24
FILE LAST UPDATED: 6 Jun 2010 (20100606/ED)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Apr 2010
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Apr 2010

CAPLUS now includes complete International Patent Classification (IPC) reclassification data for the second quarter of 2010.

CAS Information Use Policies apply and are available at:

<http://www.cas.org/legal/infopolicy.html>

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> s l27
L29 90 L27

=> s l28
L30 13 L28

=> file reg
FILE 'REGISTRY' ENTERED AT 15:19:23 ON 07 JUN 2010
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STRUCTURE FILE UPDATES: 3 JUN 2010 HIGHEST RN 1226953-63-4
DICTIONARY FILE UPDATES: 3 JUN 2010 HIGHEST RN 1226953-63-4

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TSCA INFORMATION NOW CURRENT THROUGH January 8, 2010.

Please note that search-term pricing does apply when conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stdoc/properties.html>

=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

10560670.trn

L1 STRUCTURE UPLOADED
L2 0 S L1
L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010
L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010
L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010
L6 172 SEA L5
L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010
L8 0 S OTOPHORE
L9 1 S OPTOPHORE
L10 0 S L3 AND L9
L11 12 S L4 OR L9
L12 26 S ELECTRO-OPTIC CHROMOPHORES
L13 0 S ELECTROPTIC CHROMOPHORES
L14 27 S ELECTROOPTIC CHROMOPHORES
L15 11072 S ELECTROOPTIC
L16 660 S L15 AND CHROMOPHORE
L17 679 S L12 OR L14 OR L16

FILE 'REGISTRY' ENTERED AT 15:04:07 ON 07 JUN 2010
L18 269403 S C6N/RF

FILE 'CAPLUS' ENTERED AT 15:04:59 ON 07 JUN 2010
L19 TRA L17 1- RN : 3023 TERMS

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L20 3023 SEA L19
L21 214 S L20 AND C5N/RF
L22 21 S L21 AND PROPANEDINITRILE
L23 5 S L21 AND DICYNOMETHYLENE
L24 25 S L22 OR L23
L25 25 S L24 NOT L3

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L26 99 S L25

FILE 'CAPLUS' ENTERED AT 15:15:01 ON 07 JUN 2010

FILE 'REGISTRY' ENTERED AT 15:16:51 ON 07 JUN 2010
L27 6 S L25 AND 5<=REF.CAPLUS
L28 19 S L25 NOT L27

FILE 'CAPLUS' ENTERED AT 15:18:50 ON 07 JUN 2010
L29 90 S L27
L30 13 S L28

10560670.trn

FILE 'REGISTRY' ENTERED AT 15:19:23 ON 07 JUN 2010

=> d scan 127

10560670.trn

L27 6 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[(4-{[1-piperidinyl]phenyl)methylene]-
 MF C15 H15 N3
 CI C06



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

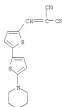
L27 6 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[2-(1-methyl-4(1H)-pyridinylidene)methylene]-
 MF C11 H9 N3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

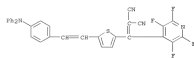
L27 6 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[(5-{[2-piperidinyl][2,8-bithiophen]-5-
 yl)methylene]-
 MF C21 H13 N2 S2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

L27 6 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[[5-[2-[4-(diphenylamino)phenyl]ethenyl]-2-
 thienyl][2,3,5,6-tetrafluoro-4-pyridinyl)methylene]-
 MF C20 H18 F4 N4 S

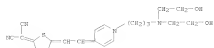


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

10560670.trn

L27 6 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[5-[2-[1-[7-[1-ia(2-hydroxyethyl)amino]propyl]-
 4(1k)-pyridinylidene]ethylidene]-2(5k)-thierylidene]-
 MF C25 H24 N4 O2 S
 CI OCN



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1) x1

L27 6 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[1-methyl-4(1k)-pyridinylidene]-
 MF C9 H7 N3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

ALL ANSWERS HAVE BEEN SCANNED

10560670.trn

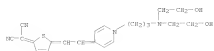
=> s 127 and hydroxyethyl

431333 HYDROXYETHYL
L31 1 L27 AND HYDROXYETHYL

=> d scan

10560670.trn

L11 1 UNKNOWN EXISTING COPYRIGHT 2010 ACS on STM
IN Propanedinitrile, 2-[5-[2-[1-[3-[bis(2-hydroxyethyl)amino]propyl]-
4(1*H*)-pyridin-2-ylidene]ethylidene]-2(5*H*)-thierylidene]-
MF C15 H24 N4 O2 S
CI OOH



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

ALL ANSWERS HAVE BEEN SCORED

10560670.trn

=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

L1 STRUCTURE UPLOADED

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L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010

L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010

L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010

L6 172 SEA L5

L7 1 S L3 NOT L6

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L8 0 S OTOPHORE

L9 1 S OPTOPHORE

L10 0 S L3 AND L9

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L12 26 S ELECTRO-OPTIC CHROMOPHORES

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L15 11072 S ELECTROOPTIC

L16 660 S L15 AND CHROMOPHORE

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L19 TRA L17 1- RN : 3023 TERMS

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FILE 'CAPLUS' ENTERED AT 15:15:01 ON 07 JUN 2010

FILE 'REGISTRY' ENTERED AT 15:16:51 ON 07 JUN 2010

L27 6 S L25 AND 5<=REF.CAPLUS

L28 19 S L25 NOT L27

10560670.trn

FILE 'CAPLUS' ENTERED AT 15:18:50 ON 07 JUN 2010
L29 90 S L27
L30 13 S L28

FILE 'REGISTRY' ENTERED AT 15:19:23 ON 07 JUN 2010
L31 1 S L27 AND HYDROXYETHYL

=> file caplus

FILE 'CAPLUS' ENTERED AT 15:20:35 ON 07 JUN 2010
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FILE COVERS 1907 - 7 Jun 2010 VOL 152 ISS 24
FILE LAST UPDATED: 6 Jun 2010 (20100606/ED)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Apr 2010
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Apr 2010

Caplus now includes complete International Patent Classification (IPC) reclassification data for the second quarter of 2010.

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<http://www.cas.org/legal/infopolicy.html>

This file contains CAS Registry Numbers for easy and accurate substance identification.

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L32 6 L31

=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010
L1 STRUCTURE UPLOADED
L2 0 S L1
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FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

L5 FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010
TRA L4 1- RN : 172 TERMS

L6 FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010
L7 172 SEA L5
1 S L3 NOT L6

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6 S L25 AND 5<=REF.CAPLUS
L28 19 S L25 NOT L27

L29 FILE 'CAPLUS' ENTERED AT 15:18:50 ON 07 JUN 2010
L30 90 S L27
13 S L28

L31 FILE 'REGISTRY' ENTERED AT 15:19:23 ON 07 JUN 2010
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L32 FILE 'CAPLUS' ENTERED AT 15:20:35 ON 07 JUN 2010
6 S L31

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10560670.trn

L33 19 L32 OR L30

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L33 ANSWER 1 OF 19 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)




L33 ANSMEK 2 OF 19 CAPLOS COPYRIGHT 2010 ACS ON STM (Continues)

IRN Intermediate prepn., hyperpolarizability and spectra of twisted
pyridinium-based chromophores)


IRN 86416-39-9 CAPLOS

CRN Propanedinitrile, 2-[4-(3,5-dimethyl-1-*o*-pyridanyl)-3,5-dimethylphenyl]-
(CA INDEX NAME)



IRN 86416-43-5 CAPLOS

CRN Propanedinitrile, 2-[4-[2-[4-(3,5-dimethyl-1-*o*-pyridanyl)-3,5-
dimethylphenyl]ethenyl]phenyl]- (CA INDEX NAME)




ITP 86416-40-2P 86416-41-2P

RL PEP (Properties); RPN (Synthetic preparations); TBN (Technical or
engineered material use); PEP (Preparation); URES (Uses)

twisted pyridinium-based chromophores)

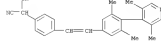
IRN 86416-40-2 CAPLOS

CRN Propanedinitrile, 2-[4-(3,5-dimethyl-1-(2-propylthiophenyl)-4(1H)-
pyridinylidene)-3,5-dimethyl-2,5-cyclohexadien-1-ylidene)- (CA INDEX NAME)



IRN 86416-41-3 CAPLOS

CRN Propanedinitrile, 2-[4-[3,5-dimethyl-1-(2-propylthiophenyl)-4(1H)-
pyridinylidene)-3,5-dimethyl-2,5-cyclohexadien-1-ylidene)- (CA INDEX NAME)



133 **ABSTRACT 4 OF 19 CAPLUS COPYRIGHT 2010 ACS on STM**
 2006/014705 Document No. 1451512974 Effects of alkyl substituents of photoconductive chromophore on electro-optic response. Choi, Chi-Sung; Hyeon, Gook Young; Ch, Jia-Mou; Hwang, Yi-Chung; Kim, Hak-Joon; (Korea)

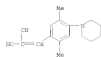
for Organic Photoconductive Materials Department of Chemistry, Kangnam University, S. Korea; Polymer Research (American Chemical Society, Division of Polymer Chemistry), 4713, 934-995 (English) 2006. CODEN: ACPAPF. ISSN: 0932-3974. Publisher: American Chemical Society, Division of Polymer Chemistry.

AB 4-(6-iodobenzoyl)ene-malononitrile derivative, with various alkyl substituents, such as Me, Et and iso-Pr were synthesized. The effect of alkyl groups attached to chromophore on electro-optical properties and response time was studied. As the temperature of the sample was raised, the electro-optic response speeded up. Also, bulky alkyl substituents in chromophore provide some free volume to facilitate the rotational mobility.

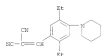
1-4, 2D response. The results indicate that the 2D response strongly depends on temperature and shape of chromophore.

IT 91021-99-7 91021-00-3 91021-01-4
 RI 30V (Device component use); MCH (Modifier or additive use); PPF (Properties); HSES (HSES)
 (Deposits effects of alkyl substituents of photoconductive chromophore on electro-optic response)

RI 91021-91-7 CAPLUS
 CH Propanedinitrile, 2-[[1,5-dimethyl-4-[[3-piperidinyl]phenyl]methylene]- (CA INDEX NAME)



RI 91021-00-3 CAPLUS
 CH Propanedinitrile, 2-[[1,5-diethyl-4-[[3-piperidinyl]phenyl]methylene]- (CA INDEX NAME)



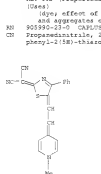
133 **ABSTRACT 5 OF 19 CAPLUS COPYRIGHT 2010 ACS on STM**
 2006/010324 Document No. 145100701 Effect of conjugation path length on quadratic nonlinear optical properties of monomer and aggregates of pentaaminar macrocyclic dyes. Jay, Ramesh C.; Bonifazi, J.; Lecapozzaki, J.; Department of Chemistry, Jackson State University, Jackson, MS 39217, USA. Journal of Physical Chemistry A, 110 (25), 5943-5949 (English) 2006. CODEN: JPACAF. ISSN: 1089-5639. Publisher: American Chemical Society.

AB We present a quantum-chemical study of the conjugation path length effect on first hyperpolarizabilities of a series of 3 zwitterionic macrocyclic dyes.

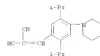
whose synthesis has been reported earlier. The effect of the conjugation path lengths is evaluated to demonstrate the engineering guidelines for enhancing mol. optical nonlinearity. The first hyperpolarizabilities are calculated for extended conjugated monomer and H and J type aggregates of macrocyclic dyes, to provide insight into the internal, intermolecular and the relationship between structural and collective nonlinear optical properties. The mol. geometries for monomers are obtained via B3LYP/6-31G(d,p) level optimization including the PCV/PCM approach, and the dynamic nonlinear optical (NLO) properties for monomer and aggregates are calculated with the ETD/CC method, including solvent effects. It is found that the chain length dependence of the first nonlinearity peaks at n = 6 and then it starts changing slowly for monomer and aggregates of pentaaminar macrocyclic dyes. It is concluded that an excellent NLO response in solution might vanish when the active chromophore forms aggregates. The importance of our result on the design of electrooptic materials has been discussed.

IT 90190-21-0
 RI 30V (Device component use); MCH (Modifier or additive use); HSES (HSES)

RI 90190-21-0 CAPLUS
 CH Propanedinitrile, 2-[[1,5-diethyl-4-[[3-piperidinyl]phenyl]methylene]-4-phenyl-2-thienyl-thiazolidene- (CA INDEX NAME)



133 **ABSTRACT 4 OF 19 CAPLUS COPYRIGHT 2010 ACS on STM** (Contd. from)
 RI 91022-01-4 CAPLUS
 CH Propanedinitrile, 2-[[1,5-bis(1-methylethyl)-4-[[3-piperidinyl]phenyl]methylene]- (CA INDEX NAME)



133 **ABSTRACT 6 OF 19 CAPLUS COPYRIGHT 2010 ACS on STM**
 2006/010326 Document No. 145100599 Electro-optic poled sol-gel materials doped with heterocyclic push-pull chromophores. Della Giustina, Gioia; Bressini, Giovanni; Oglietti, Massimo; Diapensa, Maria; Diapensa, Maria; Maria; Varas, Mauro; Casadonna, Mauro; Quarta, Alessia; De Mattia, Fabio; Gioretti, Emilio; Margheri, Giancarlo; Innocenti, Pina; Abbate, Alessandro; Beverina, Luca; Pagan, Giorgio A. (Dipartimento di Ingegneria)

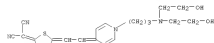
Meccanica, Settore Materiali and IMS, Padova, 35131, Italy). Materials Science & Engineering, C. Biomimetic and Supramolecular Systems, 16 (1-7), 379-382 (English) 2006. CODEN: MCEER. ISSN: 0921-0191. Publisher: Elsevier B.V.

AB Hybrid organic-inorg. materials doped with zwitterionic push-pull chromophores with high hyperpolarizability were synthesized via sol-gel, based on glycidyoxypropyltrimethoxysilane (GPTMO) and glycidyoxypropylmethyldimethoxysilane (GPMDS). Homogeneous films doped with chromophores, were obtained using 8-hydroxyethylacrylate as a spacer avoiding dye aggregation. The waveguiding properties of the spin-coated doped films were tested in N2 atmosphere showing 2nd harmonic generation measurements, were preliminarily measured by s-line spectroscopy before and after poling the feasibility of channel waveguiding structure was demonstrated.

IT 468721-53-1
 RI 30V (Device component use); MCH (Modifier or additive use); HSES (HSES)

RI 468721-53-1 CAPLUS

CH Propanedinitrile, 2-[[1,5-diethyl-4-[[3-piperidinyl]phenyl]methylene]-4-[[3-piperidinyl]phenyl]methylene]- (CA INDEX NAME)



133 ANSWER 7 OF 19 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)
 200511057743 Document No. 14317358400 Synthesis and unprecedented
 electro-optic response properties of twisted π -system chromophores.
 Kang, Rui; Jacobowitz, Antonio; Zhang, Hua; Zhu, Weizeng; Mark, Robin J.;
 Department of Chemistry and the Materials Research Center, Northwestern
 University, Evanston, IL 60208-3113, USA). Materials Research Society
 Symposium Proceedings, 866 (Rare-Earth Doping for Optoelectronic
 Applications), 131-136 (English) 2005. CODEN: MRSMPH. ISSN: 0272-9172.
 OTHER SOURCE: CASIRACT 1431735840. Publisher: Materials Research
 Society.

AB Symposium proceedings. A series of unconventional twisted intramolecular
 charge-transfer (TICT) chromophores was designed and synthesized. These
 chromophores exhibit ultra-large first hyperpolarizabilities. The
 structural characteristic that promotes this unusual nonlinear optical
 response is a steric-enforced reduction of the π - π conjugation
 that

endowswitterionic behavior in the ground state and provides a
 low-energy, large-amplitude strength intramolecular excitation feature. The
 consequence is that molecules with relatively small HOMO-LUMO energy
 exhibit responses far larger than those of traditional planar
 π -conjugated chromophores. At 193 nm, non-resonant $\chi^{(2)}$ values
 as high as 466 ± 10 esu are observed.

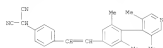
IT 06416-39-92 06416-43-50
 RIa NCT (Isotactic) SM (Synthetic preparation); PREP (Preparation); RACT
 (Reaction or reaction)

AB Synthesis and unprecedented electro-optic response properties of twisted intramolecular charge-transfer
 π -system chromophores.

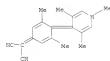
RI 06416-39-92 CAPLUS
 CH Propenadinitrile, 2-[4-(3,5-dimethyl-4-pyridinyl)-3,5-dimethylphenyl]-
 (CA INDEX NAME)



RI 06416-43-5 CAPLUS
 CH Propenadinitrile, 2-[4-(2-[4-(3,5-dimethyl-4-pyridinyl)-3,5-
 dimethylphenyl]ethenyl)phenyl]- (CA INDEX NAME)

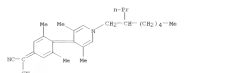


133 ANSWER 7 OF 19 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)

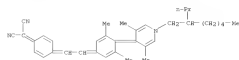


133 ANSWER 7 OF 19 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)

IT 06416-43-50 06416-44-49
 RIa MCF (Modify or add new), PREP (Preparation); SM (Synthetic
 preparation); PREP (Preparation); HES (Hes)
 Synthesis and unprecedented electro-optic response properties of
 twisted intramolecular charge-transfer π -system chromophores
 RI 06416-43-5 CAPLUS
 CH Propenadinitrile, 2-[4-(3,5-dimethyl-4-pyridinyl)-3-(2-propylphenyl)-4-(1H-
 pyridinylidene)-3,5-dimethyl-2,5-cyclohexadien-1-ylidene]- (CA INDEX
 NAME)



RI 06416-44-4 CAPLUS
 CH Propenadinitrile, 2-[4-(2-[4-(3,5-dimethyl-4-pyridinyl)-3-(2-propylphenyl)-4-(1H-
 pyridinylidene)-3,5-dimethyl-2,5-cyclohexadien-1-ylidene]ethenylidene)-2,5-
 cyclohexadien-1-ylidene]- (CA INDEX NAME)



IT 06416-40-2P
 RIa PREP (Preparation); SM (Synthetic preparation); PREP (Preparation)
 Synthesis and unprecedented electro-optic response properties of
 twisted intramolecular charge-transfer π -system chromophores

RI 06416-40-2 CAPLUS
 CH Propenadinitrile,
 2-[3,5-dimethyl-4-(1,7,5-trimethyl-4(1H-pyridinylidene)-
 2,5-cyclohexadien-1-ylidene)- (CA INDEX NAME)

133 ANSWER 8 OF 19 CAPLUS COPYRIGHT 2010 ACS on STM
 2005105330 Document No. 1431339710 A New Approach to Highly
 Electrooptically Active Materials Using Cross-Linkable, Hyperbranched
 Chromophore-Containing Oligomers as a Macromolecular Doping. Bu,
 Taewon

Song, Huihong; Gao, Zhi Ping; Sun, Jun Wang, Xiaomei; Yu, Guomay Wang,
 Shi Yun (Department of Chemistry, Caletown University, Ottawa, ON, K1S
 5W6, Can.). Journal of the American Chemical Society, 127(17), 2005-2002
 (English) 2005. CODEN: JACSAT. ISSN: 0002-7867. OTHER SOURCE:
 CASIRACT

1421336971. Publisher: American Chemical Society.

AB A new, practical approach to a variety of highly electrooptically active
 polymers for device development is described. It involves the use of a
 new thermally cross-linkable, hyperbranched oligomer containing nonlinear
 optical (NLO) chromophore as a macromolecular dopant in a common host
 polymer.

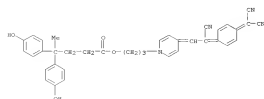
A series of NLO polymeric blends were readily formulated and showed large
 and stable electrooptic (EO) effects (up to 65 pm/V). In comparison with
 previously studied linear NLO polyimides and guest-host polymers doped
 with mol. chromophores and even linear NLO analogues oligomers, this new
 approach offers clear advantages for device development in terms of
 improved poling efficiency, larger EO coefficient, good temporal stability,
 and variable material formulation.

IT 04559-33-70P reaction products with aminobenzocyclobutene
 04559-34-8P 04559-35-9P

RIa PREP (Preparation); SM (Synthetic preparation); PREP (Preparation)
 (crosslinkable hyperbranched chromophore-containing oligomers as
 macromolecular dopants for highly electrooptically active materials)

RI 04559-33-7 CAPLUS
 CH Benzenesulfonic acid, 4-hydroxy-2-(4-hydroxyphenyl)-2-methyl-,
 3-[4-(2-cyano-2-[4-(4-dimethylaminophenyl)-2,5-cyclohexadien-1-
 ylidene]ethenylidene)-4(1H-pyridinyl)propyl ester, polymer with
 1,2,5-benzenetrisulfonyl trisulfide (PCT) (CA INDEX NAME)

CH 1
 RI 04559-35-4
 CH 37 RI 04 04



CH 2
 CH 4422-95-1

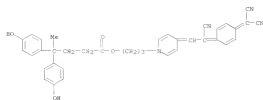
133 ANWHER 9 OF 19 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)
 CNF C3 R3 C13 C5



RI 848599-74-9 CAPLUS
 CN Benzenebutanoic acid, 4-hydroxy-γ-(4-hydroxyphenyl)-γ-methyl-, 3-[4-(2-cyano-2-[4-(diocyanomethylene)-2,5-cyclohexadiene-1-ylidene]ethyldiene)-1(4H)-pyridinyl]propyl ester, polymer with 3,3-benzenedisocarbonyl dichloride (9CI) (CA INDEX NAME)

CN 1

CNF 848599-70-4
 CNF C17 R12 D4 C4



CN 2

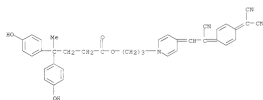
CNF 99-63-8
 CNF C8 R4 C12 C2

133 ANWHER 9 OF 19 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)
 RI: NCT (Reactant)/ SYN (Synthetic preparation)/ PREP (Preparation)/ NACT (Reactant or reagent)

AA monomer, crosslinkable hyperbranched chromophore-contg. oligoesters

RI 848599-70-4 CAPLUS

CN Benzenebutanoic acid, 4-hydroxy-γ-(4-hydroxyphenyl)-γ-methyl-, 3-[4-(2-cyano-2-[4-(diocyanomethylene)-2,5-cyclohexadiene-1-ylidene]ethyldiene)-1(4H)-pyridinyl]propyl ester (CA INDEX NAME)



133 ANWHER 9 OF 19 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)

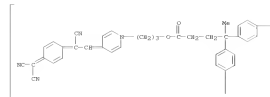


RI 848599-70-9 CAPLUS

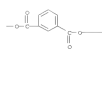
CN

RI Poly[oxy(carbonyl)-1,3-phenyleneoxy(carbonyl)-1,4-phenylene[4-[3-[4-(2-cyano-2-[4-(diocyanomethylene)-2,5-cyclohexadiene-1-ylidene]ethyldiene)-1(4H)-pyridinyl]propoxy]-1-methyl-4-cyanylethylene]-1,4-phenylene] (9CI) (CA INDEX NAME)

PAGE 1-A



PAGE 1-B



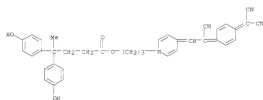
IT 848599-70-4P

133 ANWHER 9 OF 19 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)
 RI: NCT (Reactant)/ SYN (Synthetic preparation)/ PREP (Preparation)/ NACT (Reactant or reagent)

AA monomer, crosslinkable hyperbranched chromophore-contg. oligoesters

RI 848599-70-4 CAPLUS

CN Benzenebutanoic acid, 4-hydroxy-γ-(4-hydroxyphenyl)-γ-methyl-, 3-[4-(2-cyano-2-[4-(diocyanomethylene)-2,5-cyclohexadiene-1-ylidene]ethyldiene)-1(4H)-pyridinyl]propyl ester (CA INDEX NAME)



133 ANWHER 9 OF 19 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)
 0004(97721) Document No. 142(142476) Pooled sol-gel materials doped with heterocycle-based push-pull chromophores with second-order optical non-linearity. Russett, Giovanni; Innocenti, Flaminio; Cappelletti, Massimo

Abstract, Alessandro; Boverino, Luca; Pagani, Giorgio A.; Cappelletti, Mauro; Saccellini, Felice (Dipartimento di Ingegneria Meccanica, Settore Materiali, Università di Padova, Padova, 35131, Italy). Journal of Non-Crystalline Solids, 243(246), 575-579. (English) 2004. CODEN: JNCRSF. ISSN: 0022-3093. PUBLISHER: Elsevier B.V.

AB In this work, a previously studied system of a hybrid sol-gel material doped with a push pull chromophore is optimized by co-doping the matrix with carbazole functionalized units, and achieving enhanced second order NLO properties. The microstructure modifications of the hybrid sol-gel matrix have been investigated during the thermal treatment and the poling procedure, together with the stability of the deposits. The thermal treatment performed during the poling process depts the carbazole units degradation while the chromophore moles remain unaltered and their absorbance features are strongly modified.

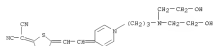
IT 468721-53-10

RI: NCA (Modifier or additive use)/ PREP (Preparation, unclassified)/ PREP (Properties); PREP (Preparation); DES (Des)

(chromophore) poled sol-gel materials doped with heterocycle-based push-pull chromophores with second-order optical non-linearity)

RI 468721-53-1 CAPLUS

CN Propargindithiote, 2-[5-[2-[12-[bis[2-hydroxyethyl]amino]propyl]-4(1H)-pyridinylidene]ethyldiene]-2(3H)-thienylidene]- (CA INDEX NAME)



133 ANKER 11 OF 19 CARLOS CORRADI 2010 ACS ON STM
2004190604 Document No. 14138233 Hybrid organic-inorganic materials with
nonlinear optical response based on organic chromophores and precursors for
the preparation thereof. Saccenti, Felicio Abbato, Alessandro
Beverina, Luca Pagan, Giorgio Rusconi, Giovanni Innocenti, Flaminio
Casalbon, Mauro Saccenti, Paolo Rossi di Milano-Ricordi, Italy; 20041028, 23
pg. UNCLASSIFIED 370758. (En) AB, AD, AU, AV, AZ, BA, BB, BC, BD, BE, BF, BG, BH, BI, BJ, BK, BL, BM, BN, BO, BP, BQ, BR, BS, BT, BU, BV, BW, BX, BY, BZ, CA, CB, CC, CD, CE, CF, CG, CH, CI, CJ, CK, CL, CM, CN, CO, CP, CQ, CR, CS, CT, CU, CV, CW, CX, CY, CZ, DA, DB, DC, DD, DE, DF, DG, DH, DI, DJ, DK, DL, DM, DN, DO, DP, DQ, DR, DS, DT, DU, DV, DW, DX, DY, DZ, EA, EB, EC, ED, EE, EF, EG, EH, EI, EJ, EK, EL, EM, EN, EO, EP, EQ, ER, ES, ET, EU, EV, EW, EX, EY, EZ, FA, FB, FC, FD, FE, FF, FG, FH, FI, FJ, FK, FL, FM, FN, FO, FP, FQ, FR, FS, FT, FU, FV, FW, FX, FY, FZ, GA, GB, GC, GD, GE, GF, GH, GI, GJ, GK, GL, GM, GN, GO, GP, GQ, GR, GS, GT, GU, GV, GW, GX, GY, GZ, HA, HB, HC, HD, HE, HF, HG, HH, HI, HJ, HK, HL, HM, HN, HO, HP, HQ, HR, HS, HT, HU, HV, HW, HX, HY, HZ, IA, IB, IC, ID, IE, IF, IG, IH, II, IJ, IK, IL, IM, IN, IO, IP, IQ, IR, IS, IT, IU, IV, IW, IX, IY, IZ, JA, JB, JC, JD, JE, JF, JG, JH, JI, JJ, JK, JL, JM, JN, JO, JP, JQ, JR, JS, JT, JU, JV, JW, JX, JY, JZ, KA, KB, KC, KD, KE, KF, KG, KH, KI, KJ, KK, KL, KM, KN, KO, KP, KQ, KR, KS, KT, KU, KV, KW, KX, KY, KZ, LA, LB, LC, LD, LE, LF, LG, LH, LI, LJ, LK, LM, LN, LO, LP, LQ, LR, LS, LT, LU, LV, LW, LX, LY, LZ, MA, MB, MC, MD, ME, MF, MG, MH, MI, MJ, MK, ML, MN, MO, MP, MQ, MR, MS, MT, MU, MV, MW, MX, MY, MZ, NA, NB, NC, ND, NE, NF, NG, NH, NI, NJ, NK, NL, NM, NO, NP, NQ, NR, NS, NT, NU, NV, NW, NX, NY, NZ, OA, OB, OC, OD, OE, OF, OG, OH, OI, OJ, OK, OL, OM, ON, OO, OP, OQ, OR, OS, OT, OU, OV, OW, OX, OY, OZ, PA, PB, PC, PD, PE, PF, PG, PH, PI, PJ, PK, PL, PM, PN, PO, PP, PQ, PR, PS, PT, PU, PV, PW, PX, PY, PZ, QA, QB, QC, QD, QE, QF, QG, QH, QI, QJ, QK, QL, QM, QN, QO, QP, QQ, QR, QS, QT, QU, QV, QW, QX, QY, QZ, RA, RB, RC, RD, RE, RF, RG, RH, RI, RJ, RK, RL, RM, RN, RO, RP, RQ, RR, RS, RT, RU, RV, RW, RX, RY, RZ, SA, SB, SC, SD, SE, SF, SG, SH, SI, SJ, SK, SL, SM, SN, SO, SP, SQ, SR, SS, ST, SU, SV, SW, SX, SY, SZ, TA, TB, TC, TD, TE, TF, TG, TH, TI, TJ, TK, TL, TM, TN, TO, TP, TQ, TR, TS, TT, TU, TV, TW, TX, TY, TZ, UA, UB, UC, UD, UE, UF, UG, UH, UI, UJ, UK, UL, UM, UN, UO, UP, UQ, UR, US, UT, UV, UW, UX, UY, UZ, VA, VB, VC, VD, VE, VF, VG, VH, VI, VJ, VK, VL, VM, VN, VO, VP, VQ, VR, VS, VT, VU, VW, VX, VY, VZ, WA, WB, WC, WD, WE, WF, WG, WH, WI, WJ, WK, WL, WM, WN, WO, WP, WQ, WR, WS, WT, WU, WV, WW, WX, WY, WZ, XA, XB, XC, XD, XE, XF, XG, XH, XI, XJ, XK, XL, XM, XN, XO, XP, XQ, XR, XS, XT, XU, XV, XW, XX, XY, XZ, YA, YB, YC, YD, YE, YF, YG, YH, YI, YJ, YK, YL, YM, YN, YO, YP, YQ, YR, YS, YT, YU, YV, YW, YX, YZ, ZA, ZB, ZC, ZD, ZE, ZF, ZG, ZH, ZI, ZJ, ZK, ZL, ZM, ZN, ZO, ZP, ZQ, ZR, ZS, ZT, ZU, ZV, ZW, ZX, ZY, ZZ.

AB Hybrid organic-inorganic materials comprising a

matrix having at least one organic chromophore which may be dipole-oriented
using elec. fields are described which include an effective amount of
carboxylic deriv. compds. having a C1-19 (unbranched alkyl chain with
a hydroxyl group bonded to the N and substituents independently
selected from H, lower alkyl, and aryl) groups bonded to the ring carbons.
Methods for preparing the materials are described which entail providing

a cross linked matrix wherein an organic chromophore is heated in which the
carboxylic deriv. are provided in the matrix. Sol-gel processing may be
used to provide the materials. Electrooptical materials employing the
materials are also described.

IT 469721-53-1

RI: PEP (Device component use); MOK (Modifier or additive use); USES
(Uses)

Hybrid organic-inorg. materials with nonlinear optical response

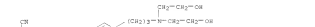
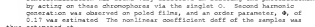
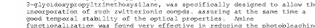
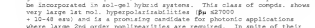
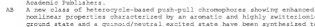
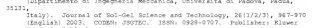
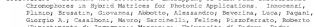
based on

organic chromophores and their preparation and use

EN 469721-53-1 CAP205

CH Prepared inditrlle, 2-[5-[2-[3-[3-[4-(2-hydroxyethylamino)propyl]-4(1H)-
pyridinylidene]ethylidene]-2(1H)-thienylidene]-

ICA INDEX NAME



133 ANKER 11 OF 19 CARLOS CORRADI 2010 ACS ON STM
200417374 Document No. 14138281 Hybrid organic-inorganic materials
containing poled witterionic push-pull chromophores. Rusconi,
Giovanni

Innocenti, Flaminio Abbato, Alessandro Beverina, Luca Pagan, Giorgio
A. Casalbon, Mauro Saccenti, Felicio Pizzoferrato, Roberto
[Dipartimento di Ingegneria Meccanica, Universita di Padova, Padova,
Italy]. Journal of the European Ceramic Society, 24(6), 1857-1858
15111, (En) AB, AD, AU, AV, AZ, BA, BB, BC, BD, BE, BF, BG, BH, BI, BJ, BK, BL, BM, BN, BO, BP, BQ, BR, BS, BT, BU, BV, BW, BX, BY, BZ, CA, CB, CC, CD, CE, CF, CG, CH, CI, CJ, CK, CL, CM, CN, CO, CP, CQ, CR, CS, CT, CU, CV, CW, CX, CY, CZ, DA, DB, DC, DD, DE, DF, DG, DH, DI, DJ, DK, DL, DM, DN, DO, DP, DQ, DR, DS, DT, DU, DV, DW, DX, DY, DZ, EA, EB, EC, ED, EE, EF, EG, EH, EI, EJ, EK, EL, EM, EN, EO, EP, EQ, ER, ES, ET, EU, EV, EW, EX, EY, EZ, FA, FB, FC, FD, FE, FF, FG, FH, FI, FJ, FK, FL, FM, FN, FO, FP, FQ, FR, FS, FT, FU, FV, FW, FX, FY, FZ, GA, GB, GC, GD, GE, GF, GH, GI, GJ, GK, GL, GM, GN, GO, GP, GQ, GR, GS, GT, GU, GV, GW, GX, GY, GZ, HA, HB, HC, HD, HE, HF, HG, HH, HI, HJ, HK, HL, HM, HN, HO, HP, HQ, HR, HS, HT, HU, HV, HW, HX, HY, HZ, IA, IB, IC, ID, IE, IF, IG, IH, II, IJ, IK, IL, IM, IN, IO, IP, IQ, IR, IS, IT, IU, IV, IW, IX, IY, IZ, JA, JB, JC, JD, JE, JF, JG, JH, JI, JJ, JK, JL, JM, JN, JO, JP, JQ, JR, JS, JT, JU, JV, JW, JX, JY, JZ, KA, KB, KC, KD, KE, KF, KG, KH, KI, KJ, KK, KL, KM, KN, KO, KP, KQ, KR, KS, KT, KU, KV, KW, KX, KY, KZ, LA, LB, LC, LD, LE, LF, LG, LH, LI, LJ, LK, LM, LN, LO, LP, LQ, LR, LS, LT, LU, LV, LW, LX, LY, LZ, MA, MB, MC, MD, ME, MF, MG, MH, MI, MJ, MK, ML, MN, MO, MP, MQ, MR, MS, MT, MU, MV, MW, MX, MY, MZ, NA, NB, NC, ND, NE, NF, NG, NH, NI, NJ, NK, NL, NM, NO, NP, NQ, NR, NS, NT, NU, NV, NW, NX, NY, NZ, OA, OB, OC, OD, OE, OF, OG, OH, OI, OJ, OK, OL, OM, ON, OO, OP, OQ, OR, OS, OT, OU, OV, OW, OX, OY, OZ, PA, PB, PC, PD, PE, PF, PG, PH, PI, PJ, PK, PL, PM, PN, PO, PP, PQ, PR, PS, PT, PU, PV, PW, PX, PY, PZ, QA, QB, QC, QD, QE, QF, QG, QH, QI, QJ, QK, QL, QM, QN, QO, QP, QQ, QR, QS, QT, QU, QV, QW, QX, QY, QZ, RA, RB, RC, RD, RE, RF, RG, RH, RI, RJ, RK, RL, RM, RN, RO, RP, RQ, RR, RS, RT, RU, RV, RW, RX, RY, RZ, SA, SB, SC, SD, SE, SF, SG, SH, SI, SJ, SK, SL, SM, SN, SO, SP, SQ, SR, SS, ST, SU, SV, SW, SX, SY, SZ, TA, TB, TC, TD, TE, TF, TG, TH, TI, TJ, TK, TL, TM, TN, TO, TP, TQ, TR, TS, TT, TU, TV, TW, TX, TY, TZ, UA, UB, UC, UD, UE, UF, UG, UH, UI, UJ, UK, UL, UM, UN, UO, UP, UQ, UR, US, UT, UV, UW, UX, UY, UZ, VA, VB, VC, VD, VE, VF, VG, VH, VI, VJ, VK, VL, VM, VN, VO, VP, VQ, VR, VS, VT, VU, VW, VX, VY, VZ, WA, WB, WC, WD, WE, WF, WG, WH, WI, WJ, WK, WL, WM, WN, WO, WP, WQ, WR, WS, WT, WU, WV, WW, WX, WY, WZ, XA, XB, XC, XD, XE, XF, XG, XH, XI, XJ, XK, XL, XM, XN, XO, XP, XQ, XR, XS, XT, XU, XV, XW, XX, XY, XZ, YA, YB, YC, YD, YE, YF, YG, YH, YI, YJ, YK, YL, YM, YN, YO, YP, YQ, YR, YS, YT, YU, YV, YW, YX, YZ, ZA, ZB, ZC, ZD, ZE, ZF, ZG, ZH, ZI, ZJ, ZK, ZL, ZM, ZN, ZO, ZP, ZQ, ZR, ZS, ZT, ZU, ZV, ZW, ZX, ZY, ZZ.

AB Dihydroxy-functionalized witterionic push-pull chromophores have been
introduced in 2-hydroxypropyltrimethoxysilane, tetraethoxysilicate
and N-[1-(trimethoxyl)propyl]ethylmethacrylate derived hybrid
materials

Hybrid films have been deposited as thin layers via spin-coating.
The amine groups introduced with the organically modified alkoxide bearing
amine functionalities have an effective scavenger effect of the dye
photobleaching. The addition, during the synthesis of the precursor
sol,

of
N-hydroxyl carboxylic acid has allowed to reach up to 20% of chromophore
concentration

avoiding the formation of aggregates within the matrix. The nonlinear
optical properties of the materials, after poling, have a good temporal
stability, with retention of approx.70% of the initial signal value,
after

several months, providing a d37 value of approx.50-70 ps V-1 at the
wavelength of 1.044 μ m.

IT 469721-53-1

RI: PEP (Properties); TEN (Technical or engineered material use); USES
(Uses)

[Di]OH,FECH,witterionic chromophore, composites with organic matrix
preparation and properties of hybrid organic-inorg. materials

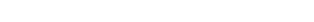
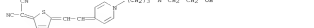
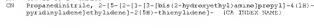
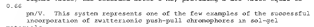
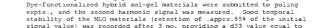
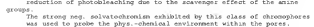
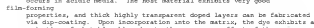
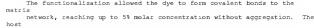
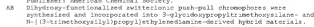
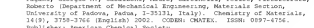
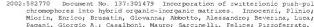
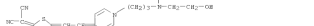
containing poled

witterionic push-pull chromophores as nonlinear optical materials

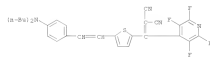
EN 469721-53-1 CAP205

CH Prepared inditrlle, 2-[5-[2-[3-[3-[4-(2-hydroxyethylamino)propyl]-4(1H)-
pyridinylidene]ethylidene]-2(1H)-thienylidene]-

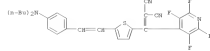
ICA INDEX NAME



- 133 ANSWER 14 OF 19 CAPLUS COPYRIGHT 2010 ACS ON STN
2005/81816 Document No. 134154859 Design and synthesis of highly efficient nonlinear optical chromophores. Wu, Xiaoming; Chen, Alex K.-Y. (Department of Chemistry, Northeastern University, Boston, MA, 02115, USA). Materials Research Society Symposium Proceedings, 159 (Electronic, Optical, and Magnetic Properties of Organic Solid-State Materials V), 821, 457-461, 4/19 (English) 2002. CODEN: MRSPDH. ISSN: 0272-9172. Publisher: Materials Research Society.
- AB Two series of highly hyperpolarizable nonlinear optical (NLO) chromophores, containing perfluorooxy(dicyanomethyl) and tri-tetracyanobutadienyl acceptors, have been designed and synthesized. These chromophores show good thermal and chemical stability. The 3D conformational structure, confirmed by computational modeling, enhance polymer matrix compatibility and decrease optical loss of the polymer films. The guest-host polymers of the chromophores show large electro-optical activities.
- IT 30385-35-0
RI FFP (Properties); SHF (Synthetic preparation); FRP (Preparation) (design and synthesis of highly efficient nonlinear optical chromophores)
- RI 303965-26-0 CAPLUS
CH Propenedinitrile, 2-[15-[2-[4-(diethylamino)phenyl]ethenyl]-2-thienyl][5,7,8,6-tetrafluoro-4-pyridinyl]methylene]- (CA INDEX NAME)

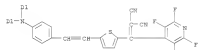


- 133 ANSWER 15 OF 19 CAPLUS COPYRIGHT 2010 ACS ON STN
2006/414740 Document No. 133122567 Design and synthesis of highly efficient chromophores and polymers for electro-optic applications. Chen, Alex K.-Y. (Department of Chemistry, Northeastern University, Boston, MA, 02115, USA). MRS (Section B) Nonlinear Optics, 2211-0, 3-14 (English) 1999. CODEN: MNLICE. ISSN: 1095-7287. Publisher: Gordon & Breach Science Publishers.
- AB A series of highly efficient, chemical and thermally stable (70 < 350°) nonlinear optical chromophores were developed by using a 2-tetracyanopyridinyl-dicyanomethyl group as the electron acceptor for a series of dialkyl- or diphenyl-amino substituted thiophene alkenes. Excellent isodiffractive among absorption, mol. nonlinearity and thermal stability were achieved. Electro-optic polymers based on the guest/host systems and covalent attachment of chromophores onto high-temperature polyimide backbone demonstrated high E-O activities ($n_{22} \leq 38$ pm/V at $\lambda = 1.5 \mu\text{m}$) and good optical, elec. and mech. properties.
- IT 303965-26-0 303701-08-19
RI FFP (Properties); SHF (Synthetic preparation); FRP (Preparation) (design and synthesis of highly efficient chromophores and polymers for electro-optic applications)
- RI 303965-26-0 CAPLUS
CH Propenedinitrile, 2-[15-[2-[4-(diethylamino)phenyl]ethenyl]-2-thienyl][2,7,8,6-tetrafluoro-4-pyridinyl]methylene]- (CA INDEX NAME)

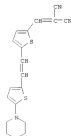


- RI 303931-08-5 CAPLUS
CH Propenedinitrile, [15-[2-[4-[bis(diethylamino)phenyl]ethenyl]-2-thienyl][2,7,8,6-tetrafluoro-4-pyridinyl]methylene]- (CA INDEX NAME)

- 133 ANSWER 15 OF 19 CAPLUS COPYRIGHT 2010 ACS ON STN (Continued)

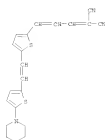


- 133 ANSWER 16 OF 19 CAPLUS COPYRIGHT 2010 ACS ON STN
1997/332662 Document No. 12725374 Original. Reference No. 13746819,49224 The role of London forces in defining nonequitysymmetric order of high dipole moment-high hyperpolarizability chromophores in electrically poled polymeric thin films. Dalton, Lary R.; Harper, Aaron W.; Robinson, Bruce H. (Loker Hydrocarbon Res. Inst., Univ. Southern California, Los Angeles, CA, 90089-1661, USA). Proceedings of the National Academy of Sciences of the United States of America, 94(10), 4842-4847 (English) 1997. CODEN: PNASCI. ISSN: 0027-8424. Publisher: National Academy of Sciences.
- AB Graphs of 2nd harmonic generation coeff. and electrooptic coeff. (measured by ellipsometry, attenuated total reflection, and 2-wait interference modulation) as a function of chromophore number N (chromophore loading) are expl. observed to exhibit maxima for polymers containing chromophores characterized by large dipole moment and polarizabilities. Modified London theory is used to demonstrate that this behavior can be attributed to the competition of chromophore-applied elec. field and chromophore-chromophore electrostatic interactions. The comparison of theor. and exp'l. data explain why the promise of exceptional macroscopic 2nd-order optical nonlinearity predicted for organic materials was not realized and suggests center for circumventing current limitations to large optical nonlinearity. The results also suggest extensions of measurements and theor. methods to achieve an improved understanding of internal interactions in condensed phase materials including materials prepared by sequential synthesis and block copolymer methods.
- IT 161419-15-4 161419-16-5
RI NCA (Modifier or additive use); FRP (Properties); USES (Uses) (London forces role in defining nonequitysymmetric order in elec. poled polymeric films of high dipole moment-high hyperpolarizability)
- RI 161419-15-4 CAPLUS
CH Propenedinitrile, 2-[15-[2-[15-(1-piperidinyl)-2-thienyl]ethenyl]-2-thienyl]methylene]- (CA INDEX NAME)



- RI 161419-16-5 CAPLUS
CH Propenedinitrile, 2-[15-[2-[15-(1-piperidinyl)-2-thienyl]ethenyl]-2-thienyl]-2-propen-1-ylidene]- (CA INDEX NAME)

L33 ANSWER 16 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



L33 ANSWER 17 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN

1995:020773 Document No. 123:155592 Original Reference No.

123:62235a,62235a

Large second-order optical nonlinearities and enhanced thermal

stabilities

in extended thiophene-containing compounds. Gilmore, Sandra; Marder, Seth

F. J. Perry, Joseph W. J. Cheng, Lap Tak (Jet Propulsion Lab., California Inst. Technol., Pasadena, CA, 91109, USA). Advanced Materials (Weinheim, Germany), 4(6), 494-4 (English) 1994. CODEN: ADVNEN ISSN: 0950-9448. Publisher: VCH.

AB In order to increase the degree of ground-state polarization, thiophene-containing comds. with a 2-phenyl-5-isocyanolene acceptor were prepared and their nonlinearities were compared to comds. with a dicyanovinyl acceptor. An enhanced nonlinearity and excellent long-term stability at 80° was observed

IT 161419-16-4

EI: PREP (Properties)

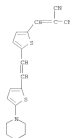
(thiophene-containing comds. with large 2nd-order optical

nonlinearities

and enhanced thermal stabilities)

RN 161419-16-4 CAPLUS

CN Propanedinitrile, 2-[5-[2-[5-[1-piperidinyl]-2-thienyl]ethenyl]-2-thienyl]-2-pyren-1-ylidene]- (CA INDEX NAME)



IT 161419-16-5P

EI: PREP (Properties); SPH (Synthetic preparation); PREP (Preparation)

(thiophene-containing comds. with large 2nd-order optical

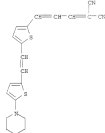
nonlinearities

and enhanced thermal stabilities)

RN 161419-16-5 CAPLUS

CN Propanedinitrile, 2-[3-[5-[2-[5-[1-piperidinyl]-2-thienyl]ethenyl]-2-thienyl]-2-pyren-1-ylidene]- (CA INDEX NAME)

L33 ANSWER 17 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



L33 ANSWER 18 OF 19 CAPLUS COPYRIGHT 2010 ACS on STN

1995:150225 Document No. 123:163480 Original Reference No. 123:100994,101014

Enhanced second-order optical nonlinearities in extended thiophene containing compounds. Gilmore, Sandra; Marder, Seth B. J. Perry, Joseph W. J.

Cheng, Lap-Tak (Jet Propulsion Laboratory, California Institute Technology, Pasadena, CA, 91109, USA). Proceedings of SPIE-The International Society for Optical Engineering, 2147 (ORGANIC METALLO-ORGANIC AND POLYMERIC MATERIALS FOR NONLINEAR OPTICAL APPLICATIONS), 117-23 (English) 1994. CODEN: PRSDGG. ISSN: 0277-786X.

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AB The synthesis and first hyperpolarizabilities (β) of the donor-acceptor-substituted thiophene-containing comds. I, II, III, and IV are reported. III and IV, incorporating the acceptor group 2-phenyl-5-isocyanolene (that can gain aromaticity upon charge separation) had

larger β than the analogous I and II molcs. containing a dicyanovinyl acceptor. For both acceptors, insertion of a vinyl group between the thiophene bridge and methine outcome of the acceptor enhances the second-order hyperpolarizability but does not lead to a significant decrease in thermal stability. The molcs. (I-IV) were incorporated into PMMA and the electro-optic coeffs. of these host-guest comds. measured.

IT 161419-16-0

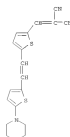
EI: PREP (Properties); SPH (Synthetic preparation); PREP (Preparation)

(enhanced second-order optical nonlinearities in extended

thiophene-containing comds.)

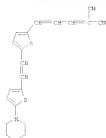
RN 161419-16-4 CAPLUS

CN Propanedinitrile, 2-[5-[2-[5-[1-piperidinyl]-2-thienyl]ethenyl]-2-thienyl]methylene]- (CA INDEX NAME)



RN 161419-16-5 CAPLUS

1.13 ANEMER 18 OF 19 CASUS COPYRIGHT 2010 ACS on STN (Continued)
CN Propozedinitrile, 2-[3-[5-[2-[5-[1-piperidinyl]-2-thienyl]ethenyl]-2-thienyl]-2-propen-1-ylidene]- (CA INDEX NAME)



10560670.trn

=> s merocyanine

4027 MEROCYANINE

904 MEROCYANINES

L34 4286 MEROCYANINE

(MEROCYANINE OR MEROCYANINES)

=> s l34 and review/dt

2385147 REVIEW/DT

L35 91 L34 AND REVIEW/DT

=> d scan ti

10560670.trn

135 31 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STM
T1 Phototherapeutic potential of alternative photosensitizers to porphyrans
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

135 31 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STM
T2 Organic colorants in light harvesting
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

135 31 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STM
T1 Pharmacological probing of bone marrow with drugs other than
cyclophosphamide derivatives
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

135 31 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STM
T2 Dyes for dye diffusion thermal transfer (DDTT) printing
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

10560670.trn

L35 91 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STM
T1 Current topics in photochemistry of sensitizing dyes
HOW MANY MORE ANSWERS DO YOU WISH TO SCANT (1):1

L35 91 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STM
T2 Methylene blue
HOW MANY MORE ANSWERS DO YOU WISH TO SCANT (1):1

L35 91 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STM
T1 Recent progress in the study of ultra-thin films
HOW MANY MORE ANSWERS DO YOU WISH TO SCANT (1):1

L35 91 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STM
T1 Dye-based organogels: Stimuli-responsive soft materials based on
one-dimensional self-assembling aromatic dyes
HOW MANY MORE ANSWERS DO YOU WISH TO SCANT (1):0

10560670.trn

=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

L1 STRUCTURE UPLOADED
L2 0 S L1
L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010

L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010

L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010

L6 172 SEA L5
L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010

L8 0 S OTOPHORE
L9 1 S OPTOPHORE
L10 0 S L3 AND L9
L11 12 S L4 OR L9
L12 26 S ELECTRO-OPTIC CHROMOPHORES

10560670.trn

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L29      FILE 'CAPLUS' ENTERED AT 15:18:50 ON 07 JUN 2010
L30      90 S L27
          13 S L28

L31      FILE 'REGISTRY' ENTERED AT 15:19:23 ON 07 JUN 2010
          1 S L27 AND HYDROXYETHYL

L32      FILE 'CAPLUS' ENTERED AT 15:20:35 ON 07 JUN 2010
L33      6 S L31
L34      19 S L32 OR L30
L35      4286 S MEROCYANINE
          91 S L34 AND REVIEW/DT

=> s 135 and furna
          2 FURNA
          119 FURNAS
          120 FURNA
          (FURNA OR FURNAS)
L36      0 L35 AND FURNA

=> s 135 and furan
          49439 FURAN
          8356 FURANS
          53345 FURAN
          (FURAN OR FURANS)
L37      0 L35 AND FURAN
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10560670.trn

138 9 ANSWERS CAPLOS COPYRIGHT 2010 ACS on STM
T1 Flash photolysis study of the mechanism of photochemical of spiropyrans
of
the naphtho[1,8-b,c]furan series
HOW MANY MORE ANSWERS DO YOU WISH TO SCANT (1):1

138 9 ANSWERS CAPLOS COPYRIGHT 2010 ACS on STM
T1 Furan substituted thiazolins and selenazolinis and sensitizing dyes
therefrom
HOW MANY MORE ANSWERS DO YOU WISH TO SCANT (1):1

138 9 ANSWERS CAPLOS COPYRIGHT 2010 ACS on STM
T1 Chemistry of 1,8-substituted naphthalenes. III. Synthesis of salts of
2-(4'-methoxy-8"-hydroxy-1"-naphthyl)benzopyrylium and photochromic
8-methoxynaphtho[1,8-b,c]furan-2-epoxide-2"-[26]chromenes from
then
HOW MANY MORE ANSWERS DO YOU WISH TO SCANT (1):1

138 9 ANSWERS CAPLOS COPYRIGHT 2010 ACS on STM
T1 A Tubular Biocondenser: Metal Ion-Induced Assembly of a Molecularly
Engineered Chaperonin
HOW MANY MORE ANSWERS DO YOU WISH TO SCANT (1):1

10560670.trn

138 9 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STM
T1 Merocyanine dyes
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

138 9 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STM
T1 Structure-property dependence of the first hyperpolarizabilities of
organometallic merocyanines based on the μ -vinylcarbyrnediion
acceptor and ferrocene donor
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

138 9 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STM
T1 Chemical and chemotherapeutic studies on furan derivatives.
XXIV. 3-Amino- α s-triazine derivatives
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

138 9 ANSWERS CAPLUS COPYRIGHT 2010 ACS on STM
T1 Effect of heteroaromatic annulation with five-membered rings on the
photochromism of 28-[1]-benzopyrans
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

10560670.trn

L18 9 AHNWERG CAPLOS CUPPELDET 2010 ACS on STM
T1 Solvent effects in heterocyanine spectra
ALL AHNWERG HAVE BEEN SCANNED

10560670.trn

=> FIL STNGUIDE

FILE 'STNGUIDE' ENTERED AT 15:43:31 ON 07 JUN 2010
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Do you want to switch to the Registry File?

Choice (Y/n):

Switching to the Registry File...

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FILE 'REGISTRY' ENTERED AT 16:06:27 ON 07 JUN 2010

USE IS SUBJECT TO THE TERMS OF YOUR STN CUSTOMER AGREEMENT.

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STRUCTURE FILE UPDATES: 3 JUN 2010 HIGHEST RN 1226953-63-4

DICTIONARY FILE UPDATES: 3 JUN 2010 HIGHEST RN 1226953-63-4

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH January 8, 2010.

Please note that search-term pricing does apply when conducting SmartSELECT searches.

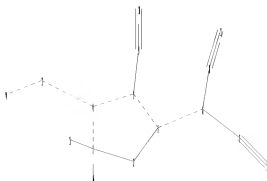
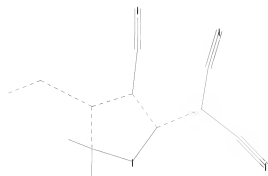
REGISTRY includes numerically searchable data for experimental and predicted properties as well as tags indicating availability of experimental property data in the original document. For information on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stdnoc/properties.html>

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10560670.trn



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6 7 8 9
ring nodes :
1 2 3 4 5
ring/chain nodes :
10 11 12 13 14 15 16
chain bonds :
1-6 3-15 3-16 4-13 5-9 6-7 6-8 7-12 8-11 9-10
ring/chain bonds :
13-14
ring bonds :
1-2 1-5 2-3 3-4 4-5
exact/norm bonds :
1-2 1-5 1-6 2-3 3-4 4-5 4-13 7-12 8-11 9-10 13-14
exact bonds :
3-15 3-16 5-9 6-7 6-8
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Match level :
1:Atom 2:Atom 3:Atom 4:Atom 5:Atom 6:CLASS 7:CLASS 8:CLASS 9:CLASS
10:CLASS 11:CLASS 12:CLASS 13:CLASS 14:CLASS 15:CLASS 16:CLASS
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L39 STRUCTURE UPLOADED

=> s 139

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SAMPLE SCREEN SEARCH COMPLETED - 57 TO ITERATE

100.0% PROCESSED 57 ITERATIONS 50 ANSWERS
INCOMPLETE SEARCH (SYSTEM LIMIT EXCEEDED)
SEARCH TIME: 00.00.01

FULL FILE PROJECTIONS: ONLINE **COMPLETE**
BATCH **COMPLETE**
PROJECTED ITERATIONS: 688 TO 1592
PROJECTED ANSWERS: 608 TO 1472

10560670.trn

L40 50 SEA SSS SAM L39

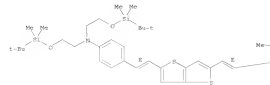
=> d scan

10560670.trn

140 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis[2-[(1,1-dimethylethyl)dimethylsilyloxyethylamino]phenyl]ethenyl]thieno[3,2-b]thien-2-yl]ethenyl]-5-cyano-5,5-dimethyl-2-thio-furanyl]dione]
 MF C42 H54 N4 O3 S2 S12

Double bond geometry as shown.

PAGE 1-A



PAGE 1-B

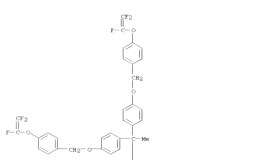


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HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1)20000

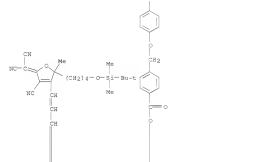
140 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Benzoic acid, 4-[[[4-[1,3-bis[4-[[4-[[[trifluoromethyl]oxy]phenyl]ethoxy]phenyl]ethoxy]phenyl]ethoxy]methyl]-[4-[2-[3-[2-[4-cyano-5-(diisopropylidene)-2-[4-[(1,1-dimethylethyl)dimethylsilyloxy]butyl]-2,5-dihydro-2-methyl-3-furanyl]-2-propenylidene]-5,5-dimethyl-1,1-cyclobuten-1-yl]ethenyl]phenyl]amino]di-2,1-ethanediyl] ester (PC2)
 MF C134 H120 F12 N4 O16 S1

PAGE 1-A

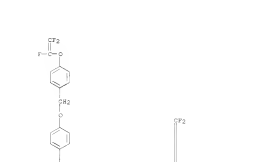


PAGE 1-A

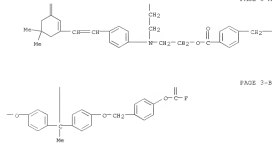
140 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)
 PAGE 2-A



PAGE 2-B



140 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)
 PAGE 3-A

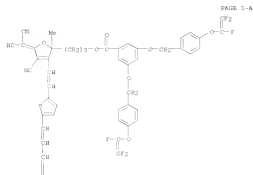


PAGE 3-B

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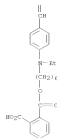
10560670.trn

L40 50 ANIMERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN 1,2-benzoxadiazolobenzylidene acid,
 1-[4-{4-[4-{5-[2-[2-[3-{[1,5,5-tria[4-{[1,2,2-trifluoroacetyl]oxy]phenyl]methoxy]benzoyloxy]propyl]-4-cyano-5-(diacyanomethylene)-2,5-dihydro-2-methyl-3-(fucanyl)ethenyl]-2-thienyl]-1,3-butadien-1-yl]phenyl]ethylamino]benzyl] ester
 MF C50 H50 F6 N4 O11 S
 CI COM



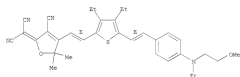
L40 50 ANIMERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

PAGE 2-A



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANIMERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propagandinitilide,
 2-[3-cyano-4-{[11Z]-2-[3,4-diethyl-1-{[11Z]-2-[4-{ethyl[2-methoxyethyl]amino]phenyl]ethenyl]-2-thienyl]ethenyl]-3,5-dimethyl-2(5H)-furan-2-ylidene]-
 MF C12 H26 N4 O2 S
 Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

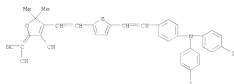
L40 50 ANIMERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Acetamide, N-[6-{4-cyano-5-(diacyanomethylene)-2,5-dihydro-2,2-dimethyl-3-furanyl]-1,3,5-benzatrien-1-yl]-N-phenyl-
 MF C14 H20 N4 O2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

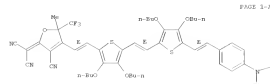
10560670.trn

L40 50 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propargenitrile,
 2-[4-{2-[5-{2-[4-{[4-(4-iodophenyl)amino]phenyl}ethenyl]-
 2-thienyl]ethenyl}-3-oxano-5,5-dimethyl-2(5H)-furanylidene]-
 MF C36 H24 I2 N4 O S
 CI C2H



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propargenitrile, 2-[3-oxano-4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[5,4-dibutoxy-5-[(1E)-2-[4-{16-[(1E)-1-dimethylmethoxy]dimethylsilyloxy]hexyl]ethylanino]phenyl]ethenyl]-2-thienyl]ethenyl]-5-methyl-5-(trifluoroethyl)-2(5H)-furanylidene]-
 MF C60 H83 F3 N4 O6 S2 Si
 Double bond geometry as shown.



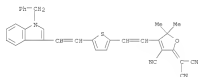
PAGE 1-A

PAGE 1-B



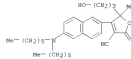
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propargenitrile,
 2-[3-oxano-5,5-dimethyl-4-{2-[5-{2-[1-(phenylmethyl)-1H-imidazol-3-yl]ethenyl}-3-thienyl]ethenyl}-2(5H)-furanylidene]-
 MF C33 H24 N4 O S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

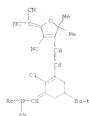
L40 50 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propargenitrile, 2-[3-oxano-4-{6-(diethylanino)-2-naphthalenyl}-5-(3-hydroxypropyl)-5-methyl-2(5H)-furanylidene]-
 MF C34 H42 N4 O2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

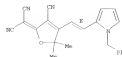
L40 50 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Acetonide,
 H-[[2-chloro-3-[[2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2,2-dimethyl-2-furanyl]ethenyl]-5-(1,1-dimethylethyl)-2-cyclohexen-1-ylidene]methyl]-6-phenyl]-
 MF C22 H33 Cl N4 O2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propenamide, 2-[3-cyano-5,5-dimethyl-4-[(1E)-2-[1-(phenylmethyl)-1H-pyrral-2-yl]ethenyl]-2(5H)-furan-2-ylidene]-
 MF C23 H28 N4 O

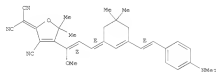
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propenamide, 2-[3-cyano-4-[(1E,3E)-2-[5-[(1E)-2-[4-(dimethylamino)phenyl]ethenyl]-5,5-dimethyl-2-cyclohexen-1-ylidene]-1-methoxy-1-propen-1-yl]-5,5-dimethyl-2(5H)-furan-2-ylidene]-
 MF C32 H34 N4 O2

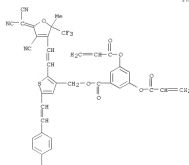
Double bond geometry as shown.



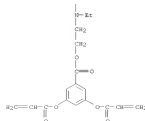
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Benzoic acid, 5,5-bis[[1-oxo-3-propen-2-yl]oxy]-, [5-[2-[4-[[2-[[[2,5-bis[[1-oxo-3-propen-2-yl]oxy]benzyl]oxy]ethyl]ethylamino]phenyl]ethenyl]-2-[2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-2-(trifluoromethyl)-2-furanyl]ethenyl]-2-thienyl]methyl] ester
 MF C55 H41 F3 N4 O13 S

PAGE 1-A



PAGE 2-A

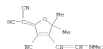


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

140 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

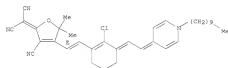
140 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propenedinitrile, 2-[3-cyano-4-[2-(dimethylamino)ethyl]-5,5-dimethyl-
 2[5H]-furan-2-ylidene]-
 MF C14 H14 N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

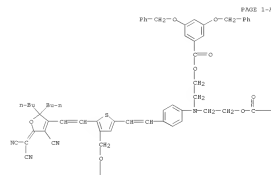
140 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propenedinitrile, 2-[4-[[[13]-2-[2-chloro-3-[2-[1-decyl-4[1H]-
 pyridinylidene]ethylidene]-1-cyclohexen-1-yl]ethenyl]-3-cyano-5,5-dimethyl-
 2[5H]-furan-2-ylidene]-
 MF C31 H40 Cl N4 O

Double bond geometry as described by E or Z.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

140 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Benzoic acid, 3,5-bis[phenylmethoxy],
 [[4-[2-[4-[[[3,5-bis[phenylmethoxy]benzoyl]oxy]methyl]-5-[2-[2,2-dimethyl-4-
 cyano-5-[diacyanomethylene]-2,5-dihydro-3-furanyl]ethenyl]-2-
 thienyl]ethenyl]phenyl]imino]di-2,2-ethenediyl ester (VCI)
 MF C39 H38 N4 O12 S



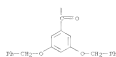
PAGE 1-A

PAGE 1-B



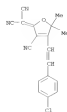
10560670.trn

140 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)
 1S Propagandinitrile, 2-[4-[2-(4-chlorophenyl)ethenyl]-3-oxano-5,5-dimethyl-
 2(5H)-furanidene]-
 MF C18 H12 Cl N7 O
 PAGE 2-A



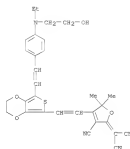
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

140 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 1S Propagandinitrile, 2-[4-[2-(4-chlorophenyl)ethenyl]-3-oxano-5,5-dimethyl-
 2(5H)-furanidene]-
 MF C18 H12 Cl N7 O



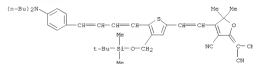
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

140 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 1S Propagandinitrile, 2-[3-oxano-4-[[[1E]-2-[[[1,1-dimethylethyl]dimethylsilyl]oxy]methyl]]-5-[[1E]-2-[[4-[[ethyl(2-hydroxyethyl)amino]phenyl]ethenyl]-2-methylproline],4-S]]-1,4-dioxin-5-yl]ethenyl]-5,5-dimethyl-2(5H)-furanidene]- (PCT)
 MF C37 H44 N4 O6 S Si
 CI 126



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140 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 1S Propagandinitrile, 2-[3-oxano-4-[2-[5-[4-[4-(diethylamino)phenyl]-1,3-butadien-1-yl]-6-[[[1,1-dimethylethyl]dimethylsilyl]oxy]methyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanidene]
 MF C41 H52 N4 O2 S Si
 PAGE 2-A



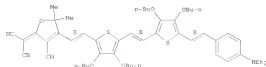
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

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10560670.trn

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Preparedacnitrile, 2-[3-cyano-4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2-thienylidene]-3-thienylidene]
 MF C50 H62 N4 O5 S2

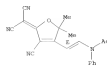
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

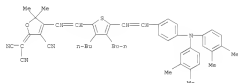
L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Acetanide, N-[(1E)-2-[4-cyano-5-(diacyanomethylene)-2,5-dihydro-2,2-dimethyl-3-furanyl]ethenyl]-8-phenyl-
 MF C29 H26 N4 O2

Double bond geometry as shown.



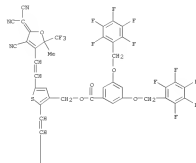
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Preparedacnitrile, 2-[4-[(2-[[5-[[2-[[4-[[Me[[3,4-dimethylphenyl]amino]phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2-thienylidene]-3-thienylidene]
 MF C48 H50 N4 O S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN 16-Pyrrole-1-propenoic acid, 2,5-dihydro-2,5-dione-, 2-[[4-[[2-[[3-[[[2,5-bis[[2,3,4,5,6-pentafluorophenyl]methoxy]benzoyl]oxy]methyl]-5-[[2-[4-cyano-5-(diacyanomethylene)-2,5-dihydro-2-methyl-2-(trifluoromethyl)-3-furanyl]ethenyl]-2-thienyl]ethenyl]phenyl]ethylanilino]ethyl ester
 MF C57 H52 F13 N5 O9 S



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10560670.trn

140 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN

(Continued)

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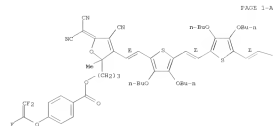


PROPERTY DATA AVAILABLE IN THE "PROP" FORMAT

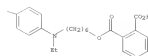
140 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN 1,3-2-isobenzofuranone, 5,5'-[2,2,2-trifluoro-3-
(trifluoromethyl)ethylidene]bis-, polymer with 2,4-diaminophenol
dihydrochloride, 4-[[4-[(1E)-2-(7,4-dimethoxy-5-[[18]-2-[3,4-dihydroxy-5-
[[1E)-2-(4-cyano-5-(diacyanomethylene)-2,5-dihydro-2-methyl-2-[[4-
[[trifluoromethyl]oxy]benzyl]oxy]propyl]-2-furyl]ethenyl)-2-
thienyl]ethenyl]-2-thienyl]ethenyl]phenyl]ethylamino]benzyl
1,2-benzenedicarboxylate (ester) 4-[[trifluoroethyl]oxy]benzoate
(ester)
(E2)
MF CT3 H81 F3 H4 G12 S2 . x (C19 H6 F6 O6 . C6 H8 N2 O . 2 C1 H4) x . x C9 H5
F3 O3

RELATED POLYMERS AVAILABLE WITH POLYLIN

CM 1
Double bond geometry as shown.



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140 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN

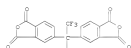
(Continued)

CM 2



CM 3

CM 4



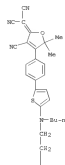
CM 5



● 3: RCL

140 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propionitrile, 2-[4-[[4-[[[butyl]2-(2,5-dihydro-2,5-dioxo-1H-pyridol-1-
yl]ethyl]amino]-2-thienyl]phenyl]-3-cyano-5,5-dimethyl-2(1H)-furylidene]-
MF C30 H27 N5 O3 S

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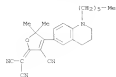
PAGE 2-A



PROPERTY DATA AVAILABLE IN THE "PROP" FORMAT

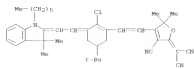
10560670.trn

L40 50 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-4-(5-hexyl-5,2,3,4-tetrahydro-6-quinolyl)-
 5,5-dimethyl-2(15b)-furylidene]-
 MF C26 H28 N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

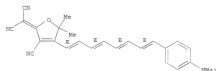
L40 50 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[2-[2-chloro-5-(1,1-dimethylethyl)-3-[2-(1-hexyl-1,3-dihydro-3,5-dimethyl-2H-indol-2-ylidene)ethylidene]-3-cyclohexen-1-yl]ethenyl]-3-cyano-5,5-dimethyl-2(15b)-furylidene]-
 MF C40 H47 Cl N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile,
 2-[3-cyano-4-[[1R,3R,5R,7E]-8-[4-(dimethylamino)phenyl]-
 1,1,5,7-octatetraen-1-yl]-5,5-dimethyl-2(15b)-furylidene]-
 MF C26 H24 N4 O

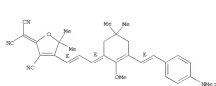
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-4-[[1E,3E]-3-[2-[[1E]-2-[4-(dimethylamino)phenyl]ethenyl]-2-methoxy-5,5-dimethyl-2-cyclohexen-1-ylidene]-1-propen-1-yl]-5,5-dimethyl-2(15b)-furylidene]-
 MF C32 H34 N4 O2

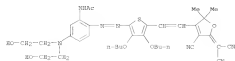
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

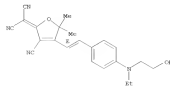
L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Acetanidev, N-[5-[[bis(2-hydroxyethyl)amino]-2-[2-[3,4-dimethoxy-5-[2-[4-cyano-3-(diacyanomethyl)ene]-2,5-dihydro-2,2-dimethyl-3-furanyl]ethenyl]-2-thienyl]diazany]phenyl]-
 MF C36 H43 N7 O6 S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propamedinitrile, 2-[3-cyano-4-[(1E)-2-[4-[ethyl(2-hydroxyethyl)amino]phenyl]ethenyl]-5,5-dimethyl-2(5H)-furan-2-ylidene]-
 MF C22 H22 N4 O2

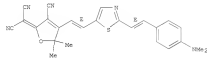
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

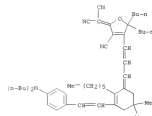
L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propamedinitrile, 2-[3-cyano-4-[(1E)-2-[2-[4-[[dimethylamino]phenyl]ethenyl]-5-thiazolyl]ethenyl]-5,5-dimethyl-2(5H)-furan-2-ylidene]-
 MF C23 H21 N5 O S

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

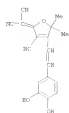
L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propamedinitrile, 2-[5,5-dimethyl-3-cyano-4-[3-[2-[4-[[diethylamino]phenyl]ethenyl]-2-hexyl]-5,5-dimethyl-2-cyclohexen-1-ylidene]-1-propen-1-yl]-2(5H)-furan-2-ylidene]-
 MF C49 H55 N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

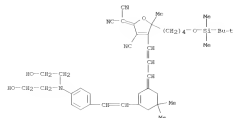
10560670.trn

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propamidinitrile, 2-[3-cyano-4-[2-[2,4-dihydroxyphenyl]ethenyl]-5,1-
 dimethyl-2(5H)-furylidene]-
 MF C18 H13 N3 O3
 CH 123 N3 O3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

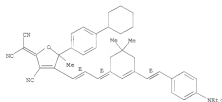
L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propamidinitrile, 2-[4-[3-[2-[4-bis(2-
 hydroxyethyl)amino]phenyl]ethenyl]-5,5-dimethyl-2-cyclohexen-3-ylidene]-1-
 propen-1-yl]-3-cyano-5-[4-[[[3,3-dimethyl-2-oxo-1,2,3,4-tetrahydro-2H-pyridine-5-ylidene]-1-
 methyl-2(5H)-furylidene]]-
 MF C42 H56 N4 O4 S1



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propamidinitrile,
 2-[3-cyano-5-[4-cyclohexylphenyl]-4-[(1E,3E)-3-[3-[(1E)-
 2-[4-(diethylamino)phenyl]ethenyl]-5,5-dimethyl-2-cyclohexen-3-ylidene]-1-
 propen-1-yl]-2-methyl-2(5H)-furylidene]-
 MF C44 H48 N4 O
 CH 124 N4 O

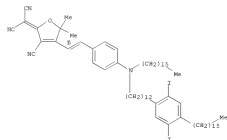
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propamidinitrile, 2-[3-cyano-4-[(1E)-2-[4-bisadenyl[12-(4-bisadenyl-2,5-
 diiodophenyl)dodecyl]amino]phenyl]ethenyl]-5,5-dimethyl-2(5H)-
 furylidene)-
 MF C68 H104 I2 N4 O
 CH 124 O

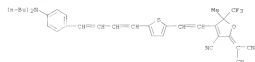
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

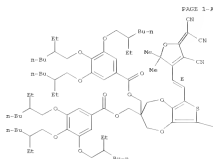
140 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Preparedimidazole, 2-[3-cyano-4-[2-[5-[4-(4-(diethylamino)phenyl]-1,3-
 imidazol-1-yl]-2-thienyl]ethenyl]-5-methyl-5-(trifluoromethyl)-2(5H)-
 furanylidene]-
 MF C34 H33 F3 N4 O S



***PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

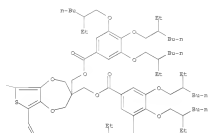
140 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Benzoxaz acid, 7,4,5-tris[12-ethylheptyloxy],
 [8-[(1E)-2-[4-cyano-5-(diethylamino)ene]-2,5-dihydro-2,2-dimethyl-3-
 furanylidene]heptyl]-8'-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]E,4'-Bu-2R-
 thieno[3,4-B][1,4]dioxepin)-3,3'(4R,4'R)-diylidene]tetraakis(methylene)
 ester (923)
 MF C170 H240 N4 O25 S2

Double bond geometry as shown.



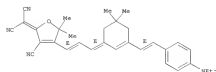
PAGE 1-A

140 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)
 PAGE 1-B

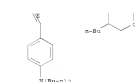


140 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Preparedimidazole, 2-[3-cyano-4-[(1E,3E)-3-[3-[(1E)-2-[4-(
 diethylamino)phenyl]ethenyl]-5,5-dimethyl-2-cyclohexen-1-ylidene]-1-
 propen-1-yl]-3,5-dimethyl-2(1H)-furfurylidene]-
 MF C33 H36 N4 O

Double bond geometry as shown.



***PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

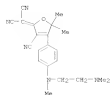


PAGE 2-B

***PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

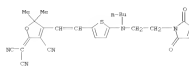
10560670.trn

L40 50 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[5-cyano-4-[4-[[2-
 (dimethylamino)ethyl]methylanino]phenyl]-5,5-dimethyl-2(5H)-furylidene]-
 MF C21 H23 N5 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

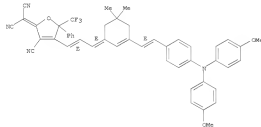
L40 50 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[2-[5-[butyl[2-(2,5-dihydro-2,5-dioxo-1H-pyrrol-1-yl)ethyl]amino]-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furylidene]-
 MF C26 H25 N5 O3 S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

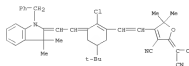
L40 50 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[[[12,12]-3-[3-[[12]-5-[4-[bis(4-methoxyphenyl)amino]phenyl]ethenyl]-5,5-dimethyl-2-cyclohexen-1-ylidene]-1-propen-1-yl]-3-cyano-5-phenyl-5-(trifluoromethyl)-2(5H)-furylidene]-
 MF C40 H29 F3 N4 O2

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[2-[2-chloro-3-[[2-[1,2-dihydro-3,3-dimethyl-1-(phenylmethyl)-2H-indol-2-ylidene]ethyldiene]-5-(1,1-dimethylethyl)-1-cyclohexen-1-yl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furylidene]-
 MF C41 H41 Cl N4 O

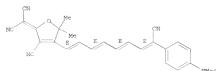


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[5-cyano-4-[(1R,7R,5R,7Z)-8-cyano-3-[4-
 (dimethylamino)phenyl]-1,3,5,7-octatetraen-1-yl]-5,5-dimethyl-2-(5R)-
 furanylidene]-
 MF C21 H23 N5 O

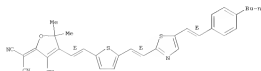
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[5-[(1E)-2-[4-
 (methylphenyl)ethynyl]-2-thiazolyl]ethynyl]-2-thienyl]ethynyl]-3-cyano-5,5-
 dimethyl-2-(5R)-furanylidene]-
 MF C33 H29 N4 O S2

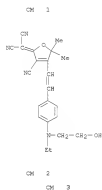
Double bond geometry as shown.



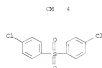
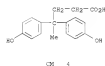
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Benzenesulfonamide acid, 4-hydroxy-γ-(4-hydroxyphenyl)-γ-methyl-,
 polymer with 1,1'-sulfonylbis[4-chlorobenzene],
 2-[4-[[2-[4-cyano-5-(dicyanomethylene)-3,5-dihydro-2,3-dimethyl-3-
 furanyl]ethenyl]phenyl]ethylamino]ethyl ester
 MF C22 H22 N4 O2 . 4 (C17 H19 O4 . C12 H8 Cl2 O2 S) x

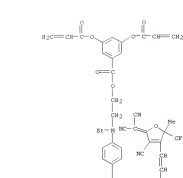
***RELATED POLYMERS AVAILABLE WITH POLYNHE**



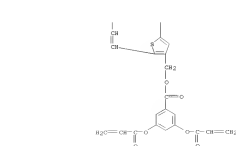
CH 1
 CH 2
 CH 3



L40 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Benzoic acid, 3,5-bis[[1-oxo-3-propen-2-yl]oxy]-,
 [2-[2-[4-[[2-[[[2-[[[3,5-bis[[1-oxo-3-propen-2-yl]oxy]benzoyl]benzoyl]oxy]ethyl]ethylamino]phenyl]ethenyl]-5-[[2-[4-cyano-5-
 (dicyanomethylene)-2,5-dihydro-2-methyl-2-(trifluoromethyl)-3-
 furanyl]ethenyl]-3-thienyl]methyl ester
 MF C55 H41 F3 N4 Cl3 S



PAGE 1-A

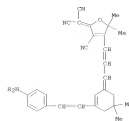


PAGE 2-A

10560670.trn

140 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STM (Continued)
 PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

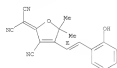
140 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propenadinitrile, 2-[4-{3-[2-[2-(4-aminophenyl)ethenyl]-5,5-dimethyl-2-cyclohexen-1-ylidene]-3-propen-1-yl]-3-cyano-5,5-dimethyl-2 (5H)-Furanylidene]-
 MF C29 H28 N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

140 50 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propenadinitrile, 2-[3-cyano-4-[(1E)-2-[2-(4-hydroxyphenyl)ethenyl]-5,5-dimethyl-2 (5H)-Furanylidene]-
 MF C28 H24 N2 O2

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

ALL ANSWERS HAVE BEEN SCANNED

10560670.trn

=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

L1 STRUCTURE UPLOADED
L2 0 S L1
L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010

L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010

L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010

L6 172 SEA L5
L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010

L8 0 S OTOPHORE
L9 1 S OPTOPHORE
L10 0 S L3 AND L9
L11 12 S L4 OR L9
L12 26 S ELECTRO-OPTIC CHROMOPHORES

10560670.trn

```
L29      FILE 'CAPLUS' ENTERED AT 15:18:50 ON 07 JUN 2010
L30      90 S L27
          13 S L28

L31      FILE 'REGISTRY' ENTERED AT 15:19:23 ON 07 JUN 2010
          1 S L27 AND HYDROXYETHYL

L32      FILE 'CAPLUS' ENTERED AT 15:20:35 ON 07 JUN 2010
L33      6 S L31
L34      19 S L32 OR L30
L35      4286 S MEROCYANINE
L36      91 S L34 AND REVIEW/DT
L37      0 S L35 AND FURNA
L38      0 S L35 AND FURAN
          9 S L34 AND FURAN

          FILE 'STNGUIDE' ENTERED AT 15:43:31 ON 07 JUN 2010

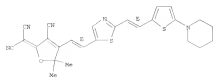
L39      FILE 'REGISTRY' ENTERED AT 16:06:27 ON 07 JUN 2010
          STRUCTURE UPLOADED
L40      50 S L39

=> s l39 full
FULL SEARCH INITIATED 16:07:50 FILE 'REGISTRY'
FULL SCREEN SEARCH COMPLETED -      1024 TO ITERATE
```

10560670.trn

142 54 ANHRSR REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1R)-2-[2-[(1R)-2-[5-[1-
 piperidinyl]-2-thienyl]ethenyl]-5-thiazolyl]ethenyl]-2(5H)-furanlidene]-
 NF C21 H23 N5 O 82

Double bond geometry as shown.

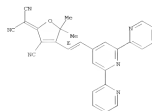


PROPERTY DATA AVAILABLE IN THE 'PSCP' FORMAT

HOW MANY WERE ANSWERS DO YOU WISH TO SCAN? (1):111

142 54 ANHRSR REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1R)-2-[2,2',2'',2'''-(
 terpyridin)-4',4''-diethenyl]-2(5H)-furanlidene]-
 NF C27 H18 N6 O

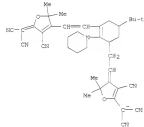
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PSCP' FORMAT

142 54 ANHRSR REGISTRY COPYRIGHT 2010 ACS on STN
 IN 3-thiadenosinium, N7,N7-trimethyl-, salt with
 2-[4-[2-[3-[2-(4-cyano-5-(diacyanomethyl)-2,2-dimethyl-3(2H)-
 furanylidene]ethyl]-5-(1,1,1-dimethylethyl)-2-(3-piperidinyl)-1-cyclohexan-1-
 yl]ethenyl]-2-cyano-5,5-dimethyl-2(5H)-furanylidene]propanedinitrile
 [111]
 NF C39 H42 N7 O2 C16 H36 N

CH 1

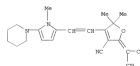


CH 2



142 54 ANHRSR REGISTRY COPYRIGHT 2010 ACS on STN
 IN Benzenesulfonic acid, 4-methyl-, doped, with
 2-[3-cyano-5,5-dimethyl-4-[2-[1-methyl-5-[1-piperidinyl]-1H-pyrol-2-
 yl]ethenyl]-2(5H)-furanylidene]propanedinitrile, ion(1)- [111]
 NF C22 H23 N5 O C7 H7 O3 S

CH 1

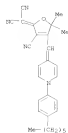


CH 2



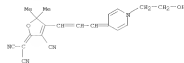
10560670.trn

142 54 ANSWEES REGISTRY COPYRIGHT 2010 ACS on STN
IN INDEX NAME NOT YET ASSIGNED
MF CDS R2B N4 O



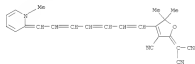
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

142 54 ANSWEES REGISTRY COPYRIGHT 2010 ACS on STN
IN Propenedinitrile, 2-[3-cyano-4-[3-[1-(2-hydroxyethyl)-4(1H)-
pyridinylidene]-1-propen-1-yl]-5,5-dimethyl-2(5H)-furanlydene]-
CDS R1B N4 O2



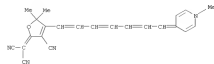
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

142 54 ANSWEES REGISTRY COPYRIGHT 2010 ACS on STN
IN Propenedinitrile, 2-[3-cyano-5,5-dimethyl-4-[7-(1-methyl-2(1H)-
pyridinylidene)-1,3,5-heptatrien-1-yl]-2(5H)-furanlydene]-
CDS R2D N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

142 54 ANSWEES REGISTRY COPYRIGHT 2010 ACS on STN
IN Propenedinitrile, 2-[3-cyano-5,5-dimethyl-4-[7-(1-methyl-4(1H)-
pyridinylidene)-1,3,5-heptatrien-1-yl]-2(5H)-furanlydene]-
CDS R2D N4 O

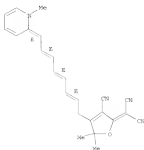


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

142 54 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propenenitrile, 2-[3-cyano-5,5-dimethyl-4-[(1H,4H,6H,8E)-8-(1-methyl-2(1H)-pyridinylidene)-2,4,6-octatrien-1-yl]-2(5H)-furanylidene]-
 MF C17 H22 N4 O

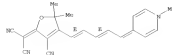
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

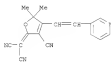
142 54 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propenenitrile, 2-[3-cyano-5,5-dimethyl-4-[(1H,4E)-5-(1-methyl-4(1H)-pyridinylidene)-1,3-pentadien-1-yl]-2(5H)-furanylidene]-
 MF C17 H18 N4 O

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

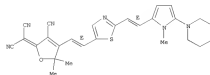
142 54 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propenenitrile,
 2-[3-cyano-5,5-dimethyl-4-[2-(2-pyridinyl)ethenyl]-2(5H)-furanylidene]-
 MF C17 H12 N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

142 54 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propenenitrile,
 2-[3-cyano-5,5-dimethyl-4-[(1E)-2-[2-[(1E)-2-[1-methyl-5-(1-piperidinyl)-1H-pyrazol-3-yl]ethenyl]-2-thienyl]ethenyl]-2(5H)-furanylidene]-
 MF C27 H26 N6 O 2

Double bond geometry as shown.

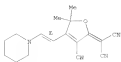


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

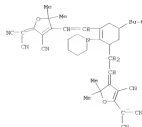
L42 04 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propamdisulfide, 2-[3-cyano-5,5-dimethyl-4-[(1R)-2-(1-
 piperidinylethoxy)-2(5H)-furylidene]-
 MF C12 H23 N4 O
 CI COM

Double bond geometry as shown.

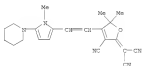


PROPERTY DATA AVAILABLE IN THE 'PQOP' FORMAT

L42 04 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propamdisulfide, 2-[4-[2-[5-[2-[4-cyano-5-(diacyanomethyl)-2,2-dimethyl-
 3(2H)-furynylidene]ethyl]-5-[1,1,1-trimethyl-2-(1-piperidinyl)-1-
 oxy]hexan-3-yl]ethoxy]-3-cyano-5,5-dimethyl-2(5H)-furylidene]-
 MF C29 H42 N7 O2
 CI COM

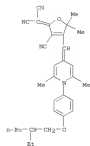


L42 04 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propamdisulfide,
 2-[3-cyano-5,5-dimethyl-4-[2-[1-methyl-5-(1-piperidinyl)-
 1H-pyrazol-3-yl]ethoxy]-2(5H)-furylidene]
 MF C12 H23 N5 O
 CI COM



PROPERTY DATA AVAILABLE IN THE 'PQOP' FORMAT

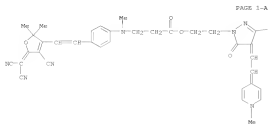
L42 04 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN INDEX NAME NOT YET ASSIGNED
 MF C32 H36 N4 O2



PROPERTY DATA AVAILABLE IN THE 'PQOP' FORMAT

10560670.trn

142 54 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN **β**-alanine, N-[4-[2-[4-cyano-3-(diacyanethylamino)-2,5-dihydro-2,2-dimethyl-3-furanyl]ethoxy]phenyl]-8-methyl-2-
 2-[4,5-dihydro-4-[1-methyl-4(1H-pyridinylidene)ethylidene]-5-oxo-3-
 pyopyl-1H-pyrazol-2-yl]ethyl ester (9CI)
 MF C28 H29 N7 O4

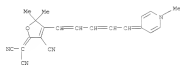


PAGE 1-B

—Fe—N

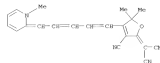
***PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

142 54 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[5-(1-methyl-4(1H-pyridinylidene)-1,3-pentadien-1-yl]-2(5H)-furanlydene]-
 MF C22 H20 N4 O



***PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

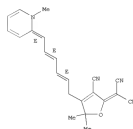
142 54 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[5-(1-methyl-2(1H-pyridinylidene)-1,3-pentadien-1-yl]-2(5H)-furanlydene)-
 MF C22 H20 N4 O



***PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

142 54 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile,
 2-[3-cyano-5,5-dimethyl-4-[(1E,4E,6E)-6-(1-methyl-2(1H-pyridinylidene)-1,3-pentadien-1-yl]-2(5H)-furanlydene)-
 MF C22 H20 N4 O

Double bond geometry as shown.

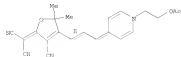


***PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

10560670.trn

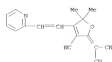
142 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[(1E)-3-[1-[2-(acetyloxy)ethyl]-4(1E)-
 pyridinylidene]-2-propen-1-yl]-3-cyano-5,5-dimethyl-2(5H)-furan-2-ylidene]-
 MF C15 H12 N4 O3

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PDOC' FORMAT

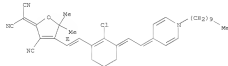
142 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile,
 2-[3-cyano-5,5-dimethyl-4-[2-(2-pyridinyl)ethenyl]-2(5H)-
 Furan-2-ylidene]-
 MF C17 H12 N4 O



PROPERTY DATA AVAILABLE IN THE 'PDOC' FORMAT

142 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[(1E)-2-[2-chloro-3-[2-[1-decyl-4(1E)-
 pyridinylidene]ethyldene]-1-cyclohexen-1-yl]ethenyl]-3-cyano-5,5-dimethyl-
 2(5H)-furan-2-ylidene]-
 MF C31 H40 Cl N4 O

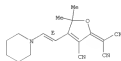
Double bond geometry as described by E or Z.



PROPERTY DATA AVAILABLE IN THE 'PDOC' FORMAT

142 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E)-2-[1-
 piperidyl]ethenyl]-2(5H)-furan-2-ylidene]-, hydrate (50:10)
 MF C17 H18 N4 O . 10/50 H2 O

Double bond geometry as shown.



●10/50 H2O

PROPERTY DATA AVAILABLE IN THE 'PDOC' FORMAT

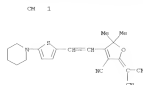
10560670.trn

L42 04 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propenodinitrile, 2-[3-cyano-4-[7-[1-methyl-4(1H)-pyridinylidene]-1,2,5-
 heptatrien-1-yl]-5,5-dimethyl-2(5H)-furylidenel]-2(5H)-
 MF C23 H22 N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

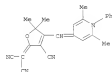
L42 04 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Benzenesulfonic acid, 4-methyl-, compd. with
 2-[3-cyano-5,5-dimethyl-4-[2-[5-(1-piperidinyl)-2-thienyl]ethenyl]-2(5H)-
 Furylidenel]propenodinitrile, 1on(1-)> (1:1)
 MF C23 H20 N4 O S . CT H7 O3 S



CH 2

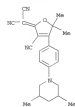


L42 04 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN 2HCAL NAME NOT YET ASSIGNED
 MF C14 H20 N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

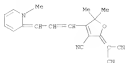
L42 04 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propenodinitrile,
 2-[3-cyano-4-[4-(3,5-dimethyl-1-piperidinyl)phenyl]-5,5-
 dimethyl-2(5H)-furylidenel]-
 MF C23 H24 N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

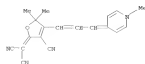
10560670.trn

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(3-[3-methyl-2(1H)-
 pyridinylidene)-1-propen-1-yl]-2(5H)-furyl]idene]-
 MF C19 H16 N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

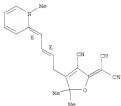
L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(3-[3-methyl-4(1H)-
 pyridinylidene)-1-propen-1-yl]-2(5H)-furyl]idene]-
 MF C19 H16 N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(2H,4E)-4-[(1-methyl-2(1H)-
 pyridinylidene)-2-buten-1-yl]-2(5H)-furyl]idene]-
 MF C20 H20 N4 O

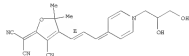
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-4-[(1E)-3-[1-(2,3-dihydroxypropyl)-4(1H)-
 pyridinylidene)-1-propen-1-yl]-5,5-dimethyl-2(5H)-furyl]idene]-
 MF C21 H20 N4 O

Double bond geometry as shown.

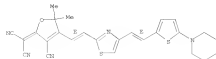


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

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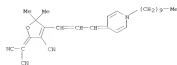
142 54 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1R)-2-[4-[(1R)-2-[5-[1-piperidinyl]-2-thienyl]ethoxy]-2-thiazolyl]ethoxy]-2(15H)-furylidene]-
 MF CN H23 N6 O H2

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

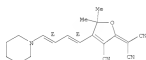
142 54 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile,
 2-[3-cyano-4-[3-(1-decyl-4(1H)-pyridinylidene)-3-propen-1-yl]-5,5-dimethyl-2(15H)-furylidene]-
 MF C28 H34 N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

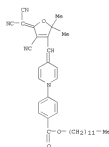
142 54 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile,
 2-[3-cyano-5,5-dimethyl-4-[(1R,3R)-4-[1-piperidinyl]-3,3-bisubstituted-1-yl]-2(15H)-furylidene]-
 MF C19 H20 N4 O

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

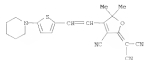
142 54 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN INDEX NAME NOT YET ASSIGNED
 MF C35 H40 N4 O3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

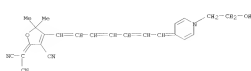
10560670.trn

142 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-(2-[5-(1-pyridinyl)-2-thienyl]ethenyl)-2(5H)-furyrilydene]-
 MF C13 H12 N4 O 5
 CI COH



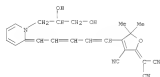
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

142 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-4-[7-[1-(2-hydroxyethyl)-4(1H)-pyridinylidene]-1,3,5-heptatrien-1-yl]-5,5-dimethyl-2(5H)-furyrilydene]-
 MF C24 H22 N4 O2



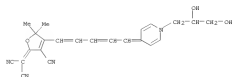
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

142 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-4-[5-[1-(2,3-dihydroxypropyl)-2(1H)-pyridinylidene]-1,3-pentadien-1-yl]-5,5-dimethyl-2(5H)-furyrilydene]-
 MF C19 H22 N4 O3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

142 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-4-[5-[1-(2,3-dihydroxypropyl)-4(1H)-pyridinylidene]-1,3-pentadien-1-yl]-5,5-dimethyl-2(5H)-furyrilydene]-
 MF C19 H22 N4 O3

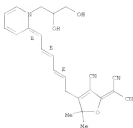


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L42 54 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-4-[(1R,4R,6R)-6-[1-(2,3-dihydroxypropyl)-
 2[(1R)-pyridinylidene]-2,4,6-heptadien-1-yl]-5,5-dimethyl-2(5H)-furan]idene]-
 MF C14 H24 N4 O3

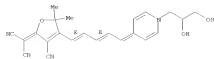
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L42 54 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-4-[(1R,4R,6R)-6-[1-(2,3-dihydroxypropyl)-4(1R)-
 pyridinylidene]-1,3-pentadien-1-yl]-5,5-dimethyl-2(5H)-furan]idene]-
 MF C15 H22 N4 O3

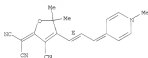
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L42 54 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E)-3-[1-methyl-4(1R)-
 pyridinylidene]-1-propen-1-yl]-2(5H)-furan]idene]-
 MF C18 H24 N4 O

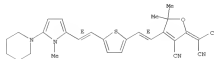
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L42 54 ANWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile,
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 (1-piperidinyl)-1H-pyrazol-2-yl]ethenyl]-2-thienyl]ethenyl]-2(5H)-
 furan]idene]-
 MF C28 H27 N5 O 2

Double bond geometry as shown.

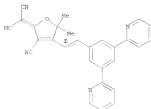


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile,
 2-[3-cyano-4-[(11E)-2,5-di-3-pyridinylphenyl]ethenyl]-
 5,7-dimethyl-2-(5H)-furanlidene]-
 MF C28 H19 N5 O

Double bond geometry as shown.

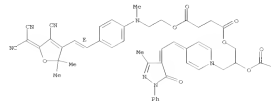


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

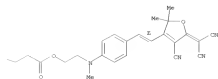
L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Butanedioic acid, 1,2'-[3-[[4-[2-[5,5-dihydro-3-methyl-5-oxo-1-phenyl-4H-pyrazol-4-ylidene]ethylidene]-4(4H)-pyridinyl]methyl]-1,3,2-oxadiazolyl]-4,4'-bis[2-[14-[(18E)-2-[4-cyano-5-(diacyanomethylamino)-2,5-dihydro-1,2'-dimethyl-3-(oxanyloxy)phenyl]methyl]amino]ethyl] ester
 MF C70 H65 N11 O11

Double bond geometry as described by E or Z.

PAGE 1-A

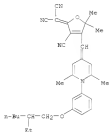


PAGE 1-B



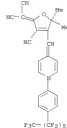
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L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN INDEX NAME NOT YET ASSIGNED
 MF C32 H36 N4 O2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN INDEX NAME NOT YET ASSIGNED
 MF C28 H15 F13 N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

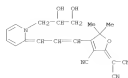
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L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[5-[1-[2-hydroxyethyl]-4(1H)-
pyridinylidene]-2,3-pentadien-1-yl]-5,5-dimethyl-2(5H)-furanlydene]-
MF C12 H22 N4 O2



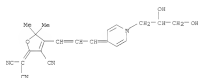
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[3-[1-[2,3-dihydroxypropyl]-2(1H)-
pyridinylidene]-1-propen-1-yl]-5,5-dimethyl-2(5H)-furanlydene]-
MF C21 H22 N4 O3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

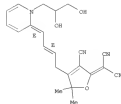
L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[3-[2-[2,3-dihydroxypropyl]-4(1H)-
pyridinylidene]-1-propen-1-yl]-5,5-dimethyl-2(5H)-furanlydene]-
MF C21 H22 N4 O3



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L42 54 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[1(2E,4E)-4-[1-[1,3-dihydroxypropyl]-2(1H)-
pyridinylidene]-2-buten-1-yl]-5,5-dimethyl-2(5H)-furanlydene]-
MF C22 H22 N4 O3

Double bond geometry as shown.



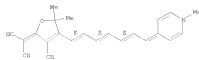
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

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L42 54 ANIMERS REGISTRY COPYRIGHT 2010 ACS on STN

IN Propanedinitrile,
2-[3-cyano-5,5-dimethyl-4-[(1R,3R,5R)-1-[1-methyl-4[(1R)-
pyridinylidene]-3,5-heptatrien-1-yl]-2(5R)-furylydene]-
MF C23 H20 N4 O

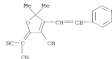
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L42 54 ANIMERS REGISTRY COPYRIGHT 2010 ACS on STN

IN Propanedinitrile,
2-[3-cyano-5,5-dimethyl-4-[2-(4-pyridinyl)ethenyl]-2(5R)-
furylydene]-
MF C17 H12 N4 O



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

ALL ANIMERS HAVE BEEN SCANNED

10560670.trn

=> d his

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L3 14 S L1 FULL

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L4 11 S L3

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FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010
L5 TRA L4 1- RN : 172 TERMS

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L6 172 SEA L5
L7 1 S L3 NOT L6

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L9 1 S OPTOPHORE
L10 0 S L3 AND L9
L11 12 S L4 OR L9
L12 26 S ELECTRO-OPTIC CHROMOPHORES
L13 0 S ELECTROPTIC CHROMOPHORES
L14 27 S ELECTROOPTIC CHROMOPHORES
L15 11072 S ELECTROOPTIC
L16 660 S L15 AND CHROMOPHORE
L17 679 S L12 OR L14 OR L16

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L18 269403 S C6N/RF

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L19 TRA L17 1- RN : 3023 TERMS

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L20 3023 SEA L19
L21 214 S L20 AND C5N/RF
L22 21 S L21 AND PROPANEDINITRILE
L23 5 S L21 AND DICYANOMETHYLENE
L24 25 S L22 OR L23
L25 25 S L24 NOT L3

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L26 99 S L25

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L27 6 S L25 AND 5<=REF.CAPLUS
L28 19 S L25 NOT L27

10560670.trn

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L29 90 S L27
L30 13 S L28

FILE 'REGISTRY' ENTERED AT 15:19:23 ON 07 JUN 2010
L31 1 S L27 AND HYDROXYETHYL

FILE 'CAPLUS' ENTERED AT 15:20:35 ON 07 JUN 2010
L32 6 S L31
L33 19 S L32 OR L30
L34 4286 S MERCYANINE
L35 91 S L34 AND REVIEW/DT
L36 0 S L35 AND FURNA
L37 0 S L35 AND FURAN
L38 9 S L34 AND FURAN

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FILE 'REGISTRY' ENTERED AT 16:06:27 ON 07 JUN 2010
L39 STRUCTURE UPLOADED
L40 50 S L39
L41 947 S L39 FULL
L42 54 S L41 AND C5N/RF

=> file caplus

FILE 'CAPLUS' ENTERED AT 16:09:52 ON 07 JUN 2010
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FILE COVERS 1907 - 7 Jun 2010 VOL 152 ISS 24
FILE LAST UPDATED: 6 Jun 2010 (20100606/ED)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Apr 2010
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Apr 2010

Caplus now includes complete International Patent Classification (IPC) reclassification data for the second quarter of 2010.

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substance identification.

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L43 20 L42

=> d cbib abs hitstr 1-

YOU HAVE REQUESTED DATA FROM 20 ANSWERS - CONTINUE? Y/(N):y

143 ABSTRACT 1 OF 20 CAPLUS COPYRIGHT 2010 ACS on STM
20101501237 Document No. 151556918 Toward highly efficient NLO
chromophores: Synthesis and properties of heterocycle-based

electronically
gradient dipolar NLO chromophores. Ma, Xiaohua Ma, Fei Shao, Zhenhua
Tong, Huiyuan Shao, Guanghui (Beijing National Laboratory for Molecular
Sciences, Key Laboratory of Polymer Chemistry and Physics of Ministry of
Education, Department of Polymer Science and Engineering, College of
Chemistry and Molecular Engineering, Peking University, Beijing, 100871,
People's Rep. China). Journal of Materials Chemistry, 20(11), 2298-2300
(English) 2010 CODEN JMACOD. ISSN 0959-3427. Publisher: Royal
Society of Chemistry.

AB To realize efficient nonlinear optical (NLO) chromophores with optimized
ground-state polarization and very large mol. optical nonlinearities, a
novel series of heterocycle-based electronically gradient dipolar
chromophores were designed and synthesized. These chromophores are
featured by their very strong electron acceptor (i.e.,
2-dicyanomethyl-3-cyano-4,5,6-trimethyl-5,5-dihydrofuran, TCF) and the
base (such as 4-cyanophenyl, but different electron donors (e.g.,
dicylaniline and diisylaniline), different heterocycles, with varying
electron densities (i.e., pyrrole, thiophene, and benzene) as the
auxiliary donor, and electron-poor 1,3-heterocycle, thiazole with
different

repeat structures (e.g., either electron-poor C2, "matched", or
electron-rich C5, "un-matched", is connected to the acceptor) as the
auxiliary acceptor, which allows for a systematic fine-tuning of the
ground-state polarization. The gradient electronic structures and
optical
properties of these NLO chromophores were carefully characterized by IR
anal., UV-vis, and hyper-Rayleigh scattering expts. All the NLO
chromophores exhibited very large static mol. first hyperpolarizabilities
[β_0] in the range of 450-900 × 10⁻³⁰ esu, which showed
significant dependence on the gradient electronic structures. Upon using
electron-rich heterocycle, pyrrole as the auxiliary donor, "matched"
thiazole

as the auxiliary acceptor, and/or diisylaniline as the electron donor,
substantially enhanced β were obtained. These studies were carried
out to understand the structure-property relationships, which showed that
multiple static excitations contributed to the β values of this
series of NLO chromophores. Investigations showed excellent thermal
stability for most of the resulting NLO chromophores, with on-set temp.
for thermal decomposition higher than 350 °C. The very large β_0
values coupled with the high thermal stability indicates good application
potential of this series of NLO chromophores.

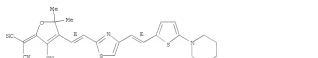
IT 1215401-90-QP 1215401-91-1P 1215401-92-2P
1215401-93-4P

SPH RLA PED (Physical, engineering or chemical process); FRP (Properties);
SYNTH (Synthetic preparation); TEM (Technical or engineered material use); PREP
(Preparation); PROC (Process); USE (Use)
Toward highly efficient NLO chromophores and synthesis and properties
of heterocycle-based electronically gradient dipolar NLO chromophores)

RI 1215401-90-5 CAPLUS
CH Propagatedinitrile,
2-[3-cyano-5,5-dimethyl-4-(1E)-2-[2-[(1E)-2-[2-methyl-5-
[i-piperidinyl]-3-pyridyl-2-yl]ethenyl]-5-thiazolyl]ethenyl]-2(5E)-

143 ABSTRACT 1 OF 20 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)
CH Propagatedinitrile, 2-[3-cyano-5,5-dimethyl-4-(1E)-2-[2-[(1E)-2-[2-
piperidinyl]-2-thienyl]ethenyl]-2-thiazolyl]ethenyl]-2(5E)-furanilidene]-
(CA INDEX NAME)

Double bond geometry as shown.



At very low oxygen partial pressures (8 × 10⁻⁶ bar) the average number of
photons required to photodegrade a chromophore is as high as 2 × 10⁶
at 655 nm. The photodegrad. quantum efficiency in air is observed to
decrease with increasing optical intensity. The authors show that this
is
due to a reduced oxygen content in the film caused by chromophore
photodegrad. rather than ground state bleaching. There is an anomalous
increase and then decrease in the photoluminescence intensity that cannot
easily be explained. (c) 2009 American Institute of Physics.

IT 1178886-26-4
RLA PED (Physical, engineering or chemical process); FRP (Properties);
MCT (Mechanism); PROC (Process); RACT (Reactant or reagent)

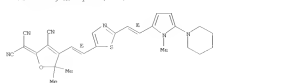
(effects of oxygen concentration and light intensity on
photostability of
heterocyclic chromophores in host-guest films containing amorphous
polycarbonate)

RI 1178886-26-4 CAPLUS
CH Propagatedinitrile,
2-[3-cyano-5,5-dimethyl-4-(1E)-pyridinylidene]-3-propen-
1-yl]-5,5-dimethyl-2(5E)-furanilidene]- (CA INDEX NAME)



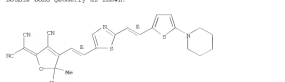
143 ABSTRACT 1 OF 20 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)
furanilidene]- (CA INDEX NAME)

Double bond geometry as shown.



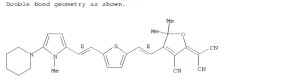
RI 1215601-93-1 CAPLUS
CH Propagatedinitrile, 2-[3-cyano-5,5-dimethyl-4-(1E)-2-[2-[(1E)-2-
piperidinyl]-2-thienyl]ethenyl]-2-thiazolyl]ethenyl]-2(5E)-furanilidene]-
(CA INDEX NAME)

Double bond geometry as shown.



RI 1215601-92-2 CAPLUS
CH Propagatedinitrile,
2-[3-cyano-5,5-dimethyl-4-(1E)-2-[2-[(1E)-2-[2-methyl-5-
[i-piperidinyl]-3-pyridyl-2-yl]ethenyl]-2-thiazolyl]ethenyl]-2(5E)-
furanilidene]- (CA INDEX NAME)

Double bond geometry as shown.



RI 1215601-98-0 CAPLUS

143 ABSTRACT 2 OF 20 CAPLUS COPYRIGHT 2010 ACS on STM
20091728784 Document No. 151556944 The effects of oxygen concentration and
light intensity on the photostability of azwitterionic chromophores.
Raymond, S. G.; Williams, G. V. M.; Lockwood, R. J.; Bhayani, M. S.; Jay,
A. J.; Quilty, J. W. (Photonic Group, Industrial Research Ltd., Lower
Hutt, 5045, N. Z.). Journal of Applied Physics, 101(11),
115213/1-115213/7 (English) 2009. CODEN JAPPHY. ISSN 0021-8979.
Publisher: American Institute of Physics.

AB Photostability measurements at different oxygen partial pressures and
light intensities have been made on host-guest films containing amorphous
polycarbonate and an organic chromophore with a high second order
nonlinear

optical figure of merit. The authors find that the photodegrad. quantum
efficiency dramatically increases with increasing oxygen partial
pressure.

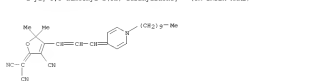
At very low oxygen partial pressures (8 × 10⁻⁶ bar) the average number of
photons required to photodegrade a chromophore is as high as 2 × 10⁶
at 655 nm. The photodegrad. quantum efficiency in air is observed to
decrease with increasing optical intensity. The authors show that this
is

due to a reduced oxygen content in the film caused by chromophore
photodegrad. rather than ground state bleaching. There is an anomalous
increase and then decrease in the photoluminescence intensity that cannot
easily be explained. (c) 2009 American Institute of Physics.

IT 1178886-26-4
RLA PED (Physical, engineering or chemical process); FRP (Properties);
MCT (Mechanism); PROC (Process); RACT (Reactant or reagent)

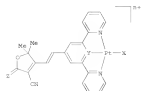
(effects of oxygen concentration and light intensity on
photostability of
azwitterionic chromophores in host-guest films containing amorphous
polycarbonate)

RI 1178886-26-4 CAPLUS
CH Propagatedinitrile,
2-[3-cyano-5,5-dimethyl-4-(1E)-pyridinylidene]-3-propen-
1-yl]-5,5-dimethyl-2(5E)-furanilidene]- (CA INDEX NAME)



143 ANHEIMER 3 OF 20 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)
 1009:661102 Document No. 151:2212840 Preparation and characterization of
 second order non-linear optical properties of new "push-pull" platinum
 complexes. Inagapari, Annababu, Kumaravel, Cyril, Rajam, Ramani,
 Klaty, Eroly, Iyengar, Srinivasan, Chelvi, Fabrice, Gao, Ajeet,
 Peter-Moreno, Olivier, Clavier, Jean, Asselbergh, Jozef, ICKEN, Chloé R.
 Interdisciplinar, Synthes, Analyse, Modelisation, UFR des Sciences et
 des Techniques, Université de Nantes, Nantes, 44322, Fr.). Dalton
 Transactions, (2022), 4378-4546 (English) 2020. CODEN: DTANAF. ISSN:
 1477-8239. OTHER SOURCE: CASREACT 151:221284. Publisher: Royal Society
 of Chemistry.

GI

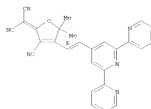


AS Platinum pincer terpyridine and di-2-pyridylphenyl chloro and acetylido
 complexes substituted by 2-cyanobenzonitrile and
 4,4'-tricyano-2-methylazobenzene chromophores were
 prepared and characterized by UV and non-linear optical data. The new
 platinum complexes 3 (n = 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14,
 C.tpbond.C-1,4-CSEBMe2, 16, 17, X = C.tpbond.C-1,4-CSEB(CSEB)2, 18,
 X = C.tpbond.CPh, 9, 13, 15, 16, 18, X = O, 10, 12, X = iC(CN)2; Y = N, n
 = 1; Y = C, n = 2) consist of a tridentate terpyridine or dipyrrolylphenyl
 ligand substituted by a strong electron accepting benzonitrile unit, and a
 chosen or an azobenzene ligand. The hyper-Rayleigh scattering
 measurements reveal that these complexes display large quadratic
 hyperpolarizabilities reaching a dynamic value of 1460 × 10⁻³⁰ esu
 at 1041 nm for the best complex. This investigation also demonstrates
 that cyano-substituted dipyrrolylphenyl platinum complexes greatly exhibit
 enhanced first hyperpolarizability with respect to analogous terpyridyl
 complexes.

117452-05-SP 117452-06-SP
 RI: NCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 terpyridine and nonlinear optical properties of platinum pincer
 and di-2-pyridylphenyl push-pull complexes substituted by

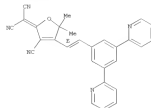
143 ANHEIMER 3 OF 20 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)
 2-cyanobenzonitrile and azobenzene acetylido chromophores)
 RI: 117452-05-6 CAPLUS
 CN: PropagatedNitrile, 2-[17-cyano-4-[(1E)-2-(2,2',6',2''-
 terpyridin-4'-yl)ethynyl]-2-(5H)-furan-5-ylidene]- (CA INDEX NAME)

Double bond geometry as shown.



RI: 117452-06-9 CAPLUS
 CN: PropagatedNitrile,
 2-[17-cyano-4-[(1E)-2-(2,2',6',2''-
 terpyridin-4'-yl)ethynyl]-2-(5H)-furan-5-ylidene]- (CA INDEX NAME)

Double bond geometry as shown.



143 ANHEIMER 4 OF 20 CAPLUS COPYRIGHT 2010 ACS on STM
 1009:207480 Document No. 150:259450 Molecular Design and Synthesis of
 Hetero-trichromophore for Enhanced Nonlinear Optical Activity. Gao,
 Jiacong, Chen, Tianliang, Yu, Xuesen, Meng, Shiyu, Wang, Mingxue, Qiu,
 Jiacong, Gao, Guangdong (Department of Materials Science and Engineering,
 State Key Laboratory of Silicon Materials, Tsinghua University, Beijing,
 100071, P.R. China). Macromolecules (Washington, DC, United
 States), 42(6), 2198-2209 (English) 2009. CODEN: MAMOLM. ISSN:
 0024-9297. OTHER SOURCE: CASREACT 150:259450. Publisher: American
 Chemical Society.

GI

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

AS A new hetero-trichromophore (HT-1) (1) was designed and synthesized by
 linking neutral-ground-state (NSG) chromophore 1 (1) with water-soluble
 [DPI] chromophore 2 (2), and their mol. structures were confirmed by
 elemental anal., UV-vis absorption spectra, IR NMR, etc. Their calcs.
 show that there is a decrease of mol. dipole moments in gas phase when
 chromophores 1 and 2 are linked together. The polymer films were
 fabricated by spin-coating trichromophore HT-1, NSG chromophore 1, and HT-1
 chromophore 2 into poly(4-vinylphenol) (PVPh). The second harmonic
 generation coeff. (d33) of the films and the thermal stability of
 optical.

nonlinearities were measured by in situ second harmonic generation (SHG)
 measurement. The results show that almost a 5-fold enhancement in second
 harmonic coeff. (d33) is realized as the combination of NSG chromophore
 and HT-1 chromophore. The results indicate that NSG and HT-1 chromophore
 combined hetero-trichromophore can efficiently improve the macroscopic
 optical nonlinearities in solid polymer materials.

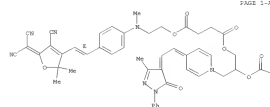
117078-12-TP
 RI: MOD (Modifier or additive use); PREP (Preparation); SPN (Synthetic
 preparation); PREP (Preparation); SHG (SHG)
 of (terracene poly(vinylphenol) doped with mol. design and synthesis
 hetero-trichromophore for enhanced nonlinear optical activity)

117078-12-1 CAPLUS
 CN: Butanedioic acid, 1,1'-[1-[[1-[(2-[1,5-dihydro-3-methyl-5-oxo-1-phenyl-4H-
 pyridin-4-ylidene]ethynylidene)-1-[4H-pyridinyl]methyl]-1,1'-ethanediyl]
 4,4'-bis[2-[[4-[[1E)-2-(6-oxo-3-dicyanomethylidene)-2,5-dihydro-2,2-
 dicyano-1,3-dioxo-1-ethynyl]ethynyl]phenyl]methyl]amino]ethyl] ester (CA INDEX
 NAME)

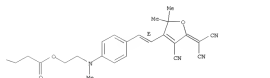
Double bond geometry as described by E or Z.

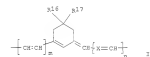
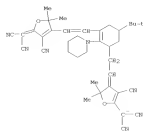
143 ANHEIMER 4 OF 20 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)

PAGE 1-A



PAGE 1-B

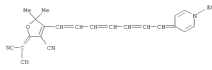


[illegible][illegible]

CH	2
CFR	10549-76-5
CME	C16, E16, N



143 ANSWER 8 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
formation of nonlinear optical polymer films used in optical modulators.
FN 1045854-34-9 CAPLUS
CN Propanedinitrile, 2-[3-cyano-4-[7-(1-ethyl-4(1H)-pyridinylidene)-1,3,5-
benzotriazin-2-ylidene]-5-methyl-2-thio]-4-oxo-1,2,3,4-tetrahydropyridine-6-ylidene]-
(CA, PUNEE NAME)



L43 ANSWER 9 OF 20 CAPLUS COPYRIGHT 2010 ACS on STM
2009/423751 Document No. 1501504049 Geometry and bond-length alternation in nonlinear optical materials. II. Effects of donor strength in two push-pull molecules. Galtara, D.; Bhuvar, M.; Balow, R.; Kay, Andrew J. (Industrial Research Limited, Lower Hut, 31-310, N. Z.). Acta Crystallographica, Section C: Crystal Structure Communications, C64(4), e15-e159 (English) 2009. CODEN ACSCCE. ISSN 0108-2701. Publisher: Blackwell Publishing Ltd..

AS The complex.

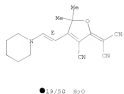
IR-[2-(4-cyano-5-ethoxycarbonyl)-2,5-dimethyl-2,5-dihydrofuran-3-yl]vinyl-4-phenylacetamide, C20H20N2O4, (I), and 2-[3-cyano-5,5-dimethyl-4-[(2-[4-cyano-5-ethoxycarbonyl-2,5-dihydrofuran-3-yl]vinyl)-2,5-dimethyl-2,5-dihydrofuran-3-yl]ethoxy]-2-phenylacetamide, C26H28N2O6, (II), are novel push-pull mol. Crystallog. data are given. The significant bending changes in the polymer chain compared with the parent mol. 2-dicyanomethylene-4,5-trimethyl-2,5-dihydrofuran-3-carbonitrile are consistent with the relative electron-donating properties of the acetonilide and piperidine groups. The packing of (I) uses one phenyl-cyano C-H...N and two phenyl-carbonyl C-H...O H bonds. (II) crystallizes with a partial R2O mol. 0.76R2O, consistent with well packing that is dominated by attractive C-H...N (bifurcated) interactions. These comds. are precursors to novel nonlinear optical chromophores, studied

to assess the impact of donor strength and the extent of conjugation on bond-length alternation, crystal packing and aggregation.

IT 1149164-41-2
R14 PEP (Preparation)
(crystal structure of)

IR 1149164-41-2 CAPLUS
CN 1 Prepared in nitro, 2-[3-cyano-5,5-dimethyl-4-[(1E)-2-[(1-piperidinyl)ethoxy]-2-(5H)-furan-2-ylidene]-1H-pyrazole-5-yl]-2-phenylacetamide, hydrate (50:19) (CA INDEX N006)

Double bond geometry as shown.



L43 ANSWER 10 OF 20 CAPLUS COPYRIGHT 2010 ACS on STM
2009/420767 Document No. 1481562610 Synthesis and properties of novel second-order NLO chromophores containing pyrrole as an auxiliary electron donor. Xu, Xiaohua; Liang, Fang; Yang, Fan; Zhao, Jianhua; Zhang, Aihui; Song, Hailong; Zhou, Qifeng; Zhang, Jiansheng (Beijing National Laboratory for Molecular Science, Key Laboratory of Polymer Chemistry and Physics of

Ministry of Education, Department of Polymer Science and Engineering, College of Chemistry and Molecular Engineering, Peking University, Beijing, 100871, P.R. China). Journal of Materials Chemistry, 19(15), 1704-1714 (English) 2009. CODEN JMCAJF. ISSN 0950-4230. Publisher: Royal Society of Chemistry.

AS A novel series of second-order NLO chromophores containing pyrrole as an auxiliary electron donor was synthesized via Knoevenagel reactions between

5-aminated N-methylpyrrole-2-carbaldehydes and different electron-accepting groups, i.e., malononitrile, phthalaldehyde tetratoate and 2-dicyanomethylene-3-cyano-4,5,5-trimethyl-2,5-dihydrofuran (TCF). Their corresponding NLO chromophores containing thiophene in the place of

pyrrole were also prepared for comparison. The resulting NLO chromophores showed good solubility in common organic solvents such as CHCl3, THF and DMF, except for

TCF containing thiophene and TCF, which is soluble in polar aprotic solvents but poorly soluble in less polar solvents. DSC studies of these chromophores showed that, in comparison with thiophene rings in the same type of NLO chromophores, pyrrole rings had higher electron σ , as evidenced by the up-field chemical shifts of pyrrole protons. TGA investigations showed

good thermal stability of these chromophores in nitrogen with the onset weight loss temps. in the range of 280 to 296 °C. For solvatochromism of 10-44 nm from dioxane to chloroform were found for these chromophores, and

moderate to very large mol. static hyperpolarizabilities (β) of 57-1490 $\times 10^{-30}$ esu were revealed by hyper-Rayleigh scattering measurements. For chemical bonding to polymer chains, hydroxyl-containing NLO

chromophores were also prepared and characterized for their linear and nonlinear optical properties.

IT 1526774-81-1P 1026774-85-3P
R14 PEP (Preparation); CN (Synthetic preparation); PREP (Preparation) (synthesis and properties of novel second-order NLO chromophores containing

pyrrole as auxiliary electron donor)

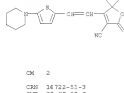
IR 1526774-83-3 CAPLUS
CN Benzenesulfonic acid, 6-methyl-, compd. with 2-[3-cyano-5,5-dimethyl-4-[(2-[(1-piperidinyl)-2-(5H)-furan-2-ylidene)]-2-(5H)-furan-2-ylidene]propenenitrile, ion(1-) (1:1) (CA INDEX N006)

CN 1

CN 1026774-80-2

CNF C22 R20 H4 O 8

L43 ANSWER 10 OF 20 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)



CN 2

CNF 16722-51-3

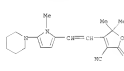
CNF C7 H7 O3 S



CN 1

CNF 1026774-80-2

CNF C22 R20 H4 O 8

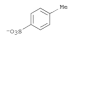


CN 2

CNF 16722-51-3

CNF C7 H7 O3 S

L43 ANSWER 10 OF 20 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)



CN 1

CNF 1026774-80-2

CNF C22 R20 H4 O 8



CN 1

CNF 1026774-80-2

CNF C22 R20 H4 O 8

143 ANSWER 14 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN
2006/421731 Document No. 145112761Q Antiparallel-Aligned
Neutral-Ground-State and Zwitterionic Chromophores as a Nonlinear Optical
Material. Iliou, Yi; Bhattacharjee, Sandip; Firestone, Kimberly A.;
Richtinger, Rocco S.; Pascale, Rajar; Anderson, Cyrus A.; Robinson, Bruce
F.; Kelly, Philip J.; Salvo, Joseph R. Department of Chemistry,
University of Washington, Seattle, WA, 98195, USA. Journal of the American
Chemical Society, 128(21), 6847-6853 (English) 2006. CODEN: JACSCT. ISSN:
0002-7536. OTRAC SOURCE: CASREACT 145112765. Publisher: American
Chemical Society.

AB Efficient photochromic arrangement of nonlinear optical (NLO)
chromophores with high 1st-order hyperpolarizability (β) for
increased electrooptical (EO) efficiency proved challenging as strong
dipolar interactions between the chromophores encourage antiparallel
alignment, attenuating the macroscopic EO effect. This work explores a
novel approach to simultaneously achieve large β values while
providing an adjustable dipole moment by linking a strong
neutral-ground-state (NGS) NLO chromophore with pos. β to a
zwitterionic (ZNI) chromophore with neg. β in an antiparallel
fashion. Probably the overall β of such a structure will be the
sum of the absolute values of the two types of chromophores while the
dipole moment will be the difference. Mols. 1-3 were optimized to test
the feasibility of this approach. Mol. dynamics calcs. and NMR data
suggested that the NGS chromophore component and the ZNI chromophore
component self-assemble to an antiparallel conformation in CHCl₃.

Calcd. showed that the dipole moment of 1 is close to the difference of the two
component chromophores. Hyper-Rayleigh scattering (HRS) studies
confirmed that the 1st hyperpolarizability of 1 is close to the sum of the two
component chromophores. These results support the idea that an
antiparallel-aligned neutral-ground-state chromophore and a zwitterionic
chromophore can simultaneously achieve an increase in β and a
decrease of the dipole moment.

IT 891511-99-29
RI FRP (Properties); SPN (Synthetic preparation); FRP (Preparation)
Antiparallel-aligned neutral-ground-state and zwitterionic
chromophores as a nonlinear optical material

20 891511-99-2 CAPLUS
20 β -Alanine, N-[4-[(1-[(4-cyano-3-(diarylamethylamino)-2,5-dihydro-2,2-
dimethyl-1-furyl)ethylamino]phenyl)-N-methyl-
2-(4,5-dihydro-1H-pyridin-4-yl)-5-oxo-3-
propyl]-1H-pyrazol-2-yl)ethyl] ester (9C1) (CA INDEX NAME)

143 ANSWER 15 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN
2006/421731 Document No. 145112761Q The effects of molecular aggregation

and isomerization on the fluorescence of "push-pull" hyperpolarizable
chromophores. Smith, Gerald J.; Dunford, Cara L.; Ray, Andrew J.;
Moulton, Anthony D. (Industrial Research Ltd., Lower Hutt, 31132, N.
Z.). Journal of Photochemistry and Photobiology, A: Chemistry, 179(13),
277-142 (English) 2006. CODEN: JPPCHT. ISSN: 1073-4359. Publisher:
Elsevier, 3.v..

AB Hyperpolarizable organic mols. are attracting interest for use in
nonlinear optical devices. Some zwitterionic metachromic chromophores with
exceptionally high first hyperpolarizabilities have been synthesized that
possess an electron donor moiety coupled to an electron acceptor through
a

conjugated double bond system. Aligned arrays of these mols. tethered to
a polystyrene backbone and spun onto a substrate to form a thin film,
respond to the application of external elec. fields with changes to their
refractive indexes, i.e. the electro-optic effect. This behavior can be
exploited upon to fabricate optical switches and modulators. High
concns., or loadings, of these nonlinear optical mols. in thin films are
required to produce a usable electro-optic effect, ca. 0.1-0.3 mol 1⁻¹,
and this promotes mol. aggregation which alters their polarizabilities

and also has implications for their photostabilities. The fluorescence
spectra of these mols. in polymer films at ambient temperature and in
solution in a 9:1 ethanol-water mixture over a range of temps. down to 80 K show a
substantial blue shift as the temperature is lowered. This is
attributed to a reduction in the solvating power of the solvent as it becomes
increasingly

more viscous at lower temps. At the lowest temps. studied a shoulder on
the lower energy side of the fluorescence spectral distribution is
apparent which is ascribed to the formation of antiparallel
dimers/aggregates; a consequence of the highly dipolar character of these
mols. In addition, dual fluorescence is observed in high viscosity
environments

suggesting the involvement of twisting about the bridging conjugated bond
system that links the electron donor to the electron acceptor.

IT 81464-64-7

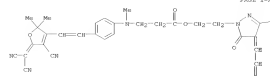
RI FRP (Properties); TBN (Technical or engineered material use); HRS
(Effects)

20 Effects of mol. aggregation and isomerization on fluorescence of
"push-pull" hyperpolarizable chromophores

20 81464-64-7 CAPLUS

20 Propanedinitrile, 2-[3-methoxy-4-[(3-[(1-(2,3-dihydropropyl)-4(1H)-
pyridinylidene)-1-propen-1-yl]-3,5-dimethyl-2(1H)-furyl)idene]-5-oxo-3-
propyl]-1H-pyrazol-2-yl]ethyl ester (9C1) (CA INDEX NAME)

143 ANSWER 14 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

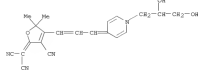


PAGE 1-A

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PAGE 1-B

143 ANSWER 15 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



143 ANSWER 16 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN
 2005111101 Document No. 1451787400 Synthesis of a new series of "B&B" chromophores and MO polymers. Bandini, Andrew M. E.; Kay, Andrew J.; Moulhouse, Anthony S. (Opto-Organic Group, Industrial Research Ltd., Lower Hut, N. Z.). Proceedings of SPIE-The International Society for Optical Engineering, 5970 (Photonics Applications in Nonlinear Optics, Nanophotonics and Microwave Photonics), 59701J/1-59701J/10 (English)

2005 CODEN: PTEHDG. ISSN: 0277-786X. OTHER DOCTYPES: CAPLUS/CT 1451787400.

Publisher: SPIE-The International Society for Optical Engineering.
 AS A series of right-hand-side (RHS) hydroxy functionalized merocyanines containing a powerful cyanodicyanomethylidenedihydrofuran electron

acceptor has been designed and synthesized. Using the "build up" approach to synthesis, variations in both the donor moiety and conjugation length of these merocyanine systems are possible, thereby giving rise to a suite

of chromophores. Hyper-Raman scattering has confirmed that the highly overpumped chromophores have large first hyperpolarizabilities (β_{H}) values that are of a similar magnitude to many of those reported for "push-out" left-hand-side systems. The hydroxy functionalized chromophores were successfully studied at various loadings onto a series of recently developed carboxylic acid containing poly(ether)sulides

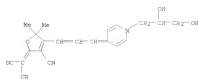
IT 51424-44-TP 51424-45-SP 510393-68-TP

510393-69-SP

AS PEP (Preparation); SP (Synthetic preparation); TM (Technical or engineering material use); PEP (Preparation); USE (Use) (chromophore synthesis and characterization of right-hand-side chromophores and MO polyindoles containing them)

51424-44-7 CAPLUS

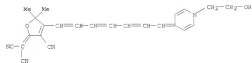
CH Propagendinitrile, 2-[3-cyano-4-[3-[1-[2,3-dihydroxypropyl]-4(1H)-pyridinylidene]-1,3-pentadien-1-yl]-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)



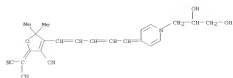
51424-45-8 CAPLUS

CH Propagendinitrile, 2-[3-cyano-4-[3-[1-[2,3-dihydroxypropyl]-4(1H)-pyridinylidene]-1,3-pentadien-1-yl]-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

143 ANSWER 16 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

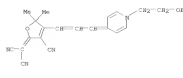


143 ANSWER 16 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



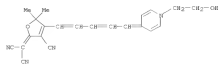
510393-69-7 CAPLUS

CH Propagendinitrile, 2-[3-cyano-4-[3-[1-[2-hydroxyethyl]-4(1H)-pyridinylidene]-1,3-pentadien-1-yl]-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)



510393-69-8 CAPLUS

CH Propagendinitrile, 2-[3-cyano-4-[3-[1-[2-hydroxyethyl]-4(1H)-pyridinylidene]-1,3-pentadien-1-yl]-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)



510393-70-1 CAPLUS

CH Propagendinitrile, 2-[3-cyano-4-[7-[1-[2-hydroxyethyl]-4(1H)-pyridinylidene]-1,3,5-heptatrien-1-yl]-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

143 ANSWER 17 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN

2005124510 Document No. 1451160140 Fluorophore compounds and their use in labeling biomolecules and biological structures. Korrer, William E.; Weiss, Robert J.; Kline, Douglas W., Jr. Menz (Stanford University, USA)

U.S. Pat. Appl. Publ. US 20050009109 A1 20050113, 44 pp. (English).
 CODEN: USXKXO. APPLICATION: US 2003-604282 20030708.

AS Fluorophore compounds and methods for their use are disclosed. The fluorophores contain a 2-dicyanomethylene-3-cyano-2,5-dihydrofuran (DCDF) moiety and one or more donor groups conjugated to the 2-dicyanomethylene-3-cyano-2,5-dihydrofuran group (e.g.,

3-cyano-2-dicyanomethylene-4-[4-(N,N-dimethylamino)phenyl]-5,5-dimethyl-2,5-dihydrofuran, DCDF-4). The donor groups can contain atoms with free electron pairs such as oxygen, sulfur, nitrogen, or phosphorus. The fluorophore compounds can be used to label and detect biomol. molec. and biol. structures either in vivo or in vitro.

IT 821789-34-8P, 3-Cyano-2-dicyanomethylene-5,5-dimethyl-4-[4-(3,5-dimethyl-1-piperidin-1-yl)phenyl]-2,5-dihydrofuran

RU NO (Biological use, unclassified); JMF (Industrial manufacture);

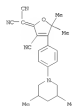
BIOL

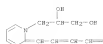
(Biological study); PEP (Preparation); USE (Use)

(preparation of fluorophore compounds containing 2-dicyanomethylene-3-cyano-2,5-dihydrofuran for labeling biomol.)

821789-34-8 CAPLUS

CH Propagendinitrile, 2-[3-cyano-4-[4-(3,5-dimethyl-1-piperidinyl)phenyl]-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)





143 ANSWER 19 OF 20 CAPLOS COPYRIGHT 2010 ACS ON STN
2004:287941 Document No. 141729550 Synthesis and linear/nonlinear optical properties of a new class of "RSE" HLO chromophore. Ray, Andrew J.; Washburn, Anthony J.; Zhao, Yuxia; Clay, Ross (Opto-Optics Group, Industrial Research Limited, Lower Hutt, N. Z.), Journal of Materials Chemistry, 14(10), 1321-1330 (English) 2004. CODES: WOODF. ISSN: 0959-9428. OTHER SOURCE: CASREACT 14172955. Publisher: Royal Society of Chemistry.

AB Examples of a new class of azwitterionic, "right-hand side" (RHS) heterocyclic containing a cyanoindolylidene-lydenedihydrofuran electron acceptor were prepared. As well as allowing for the facile synthesis of these chromophores, the synthetic methodol. enables considerable

variation in both the donor moiety as well as the extent of conjugation between the donor and acceptor systems. As expected, all of these RSE systems are neg. solvatochromic, with the difference between less polar vs. more polar solvents) increasing with the extent of conjugation. In accord with expectations, hyper-Raman scattering (HRS) measurements confirm that mole. with the greatest conjugation pathway have the largest first hyperpolarizabilities, β_{HRS} . In addition, the HRS evaluation indicates that the 4-cyanoindolylidene donor nucleus is superior to both the 4-pyridylidene and benzothiazolylidene systems. The dyes of merit, which (as measured), that are obtained for some of these compds., are of a similar magnitude to the best "left-hand side" examples reported in the literature. To demonstrate the versatility of the synthetic technique, representative polymer-attachable derivs. of these compds.

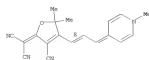
were prepared, so have the corresponding TPE-based polyethers.

IT 712273-71-7P 712273-72-8P 712273-74-8P
712273-75-1P 712273-76-2P 712273-77-1P
712273-86-3P 712273-86-4P 712273-87-5P
712273-88-6P 712273-89-7P
RU PREP (Preparation); SYN (Synthetic preparation); PREP (Preparation) (synthesis and linear/nonlinear optical properties of new class of right-hand-side HLO chromophores)

RU 712273-71-7 CAPLOS

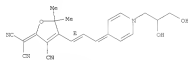
CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E)-3-[1-(2,3-dihydroxypropyl)-4(1E)-pyridinylidene]-1-propen-1-yl]-5,5-dimethyl-2(1E)-furyliden]- (CA INDEX NAME)

Double bond geometry as shown.



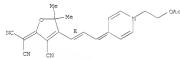
RU 712273-72-8 CAPLOS
CN Propanedinitrile, 2-[3-cyano-6-[(1E)-3-[1-(2,3-dihydroxypropyl)-4(1E)-pyridinylidene]-1-propen-1-yl]-5,5-dimethyl-2(1E)-furyliden]- (CA INDEX NAME)

Double bond geometry as shown.



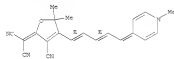
RU 712273-74-0 CAPLOS
CN Propanedinitrile, 2-[6-[(1E)-3-[1-(2-(acetyloxyethyl)-4(1E)-pyridinylidene)-1-propen-1-yl]-3-cyano-5,5-dimethyl-2(1E)-furyliden]- (CA INDEX NAME)

Double bond geometry as shown.



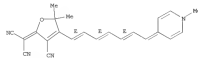
RU 712273-75-1 CAPLOS
CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E,2E)-5-[1-methyl-4(1E)-pyridinylidene]-1,3-pentadien-1-yl]-2(1E)-furyliden]- (CA INDEX NAME)

Double bond geometry as shown.



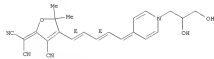
RU 712273-76-2 CAPLOS
CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E,2E)-5-[1-methyl-4(1E)-pyridinylidene]-1,3,5-heptatrien-1-yl]-2(1E)-furyliden]- (CA INDEX NAME)

Double bond geometry as shown.



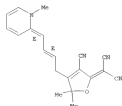
RU 712273-77-3 CAPLOS
CN Propanedinitrile, 2-[3-cyano-6-[(1E,2E)-5-[1-(2,3-dihydroxypropyl)-4(1E)-pyridinylidene]-1,3-pentadien-1-yl]-5,5-dimethyl-2(1E)-furyliden]- (CA INDEX NAME)

Double bond geometry as shown.



RU 712273-86-3 CAPLOS
CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E,4E)-8-[1-methyl-2(1E)-pyridinylidene]-2,4-hexadien-1-yl]-2(1E)-furyliden]- (CA INDEX NAME)

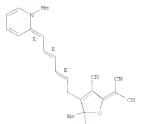
Double bond geometry as shown.



RU 712273-86-4 CAPLOS
CN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-6-[(1E,4E,6E)-6-[1-methyl-2(1E)-pyridinylidene]-2,4-hexadien-1-yl]-2(1E)-furyliden]- (CA INDEX NAME)

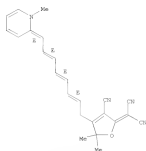
Double bond geometry as shown.

143 ANSWER 19 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



RII 712273-87-5 CAPLUS
 CH Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(2E,4E,6E)-8-(1-methyl-2(1H)-pyridinylidene)-2,4,6-octatrien-1-yl]-2(5H)-furylidene]-2(1H)-pyridinylidene] - (CA INDEX NAME)

Double bond geometry as shown.



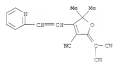
RII 712273-88-6 CAPLUS
 CH Propanedinitrile, 2-[3-cyano-4-[(2E,4E)-4-[(1Z,2,3-dihydroxypropyl)-2(1H)-pyridinylidene]-2-buten-1-yl]-5,5-dimethyl-2(5H)-furylidene]-2(1H)-pyridinylidene] - (CA INDEX NAME)

143 ANSWER 20 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN
 1995:75264 Document No. 1244853D Original Reference No. 1241805a,1806a
 Synthesis of substituted dicyanomethylendihydrofurans. Melikian, Gagik; Rouessat, Francis P.; Alexandre, Christian Laboratoire de Synthèse Organique, Faculté des Sciences, Le Mans, 72017, Fr.). Synthetic Communications, 25(13), 2045-51 (English) 1995. CODING SYNOV. 188M; 2019-7911. OTHER SOURCE: CASREACT 12418531. Publisher: Dekker.

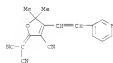
AB A simple and efficient method for the preparation of the title compds. is described from 4-ketols and malononitrile in the presence of sodium ethylate at room temperature. These compds. lead to unsat. deriva. by condensation with aldehydes. For example, condensation reaction of propanedinitrile and 3-hydroxy-3-methyl-2-butanone gave [3-cyano-2,5-dihydro-4,5,5-trimethyl-2-furylidene]propanedinitrile.

IT 171082-37-4P 171082-38-5P 171082-39-6P
 RI. SYN (Synthetic preparation) 228P (Preparation)

RII 171082-37-4 CAPLUS
 CH Propanedinitrile,
 2-[3-cyano-5,5-dimethyl-4-[(2-(2-pyridinyl)ethenyl)-2(5H)-furylidene]-2(1H)-pyridinylidene] - (CA INDEX NAME)



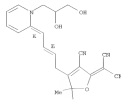
RII 171082-38-5 CAPLUS
 CH Propanedinitrile,
 2-[3-cyano-5,5-dimethyl-4-[(2-(3-pyridinyl)ethenyl)-2(5H)-furylidene]-2(1H)-pyridinylidene] - (CA INDEX NAME)



RII 171082-39-6 CAPLUS
 CH Propanedinitrile,
 2-[3-cyano-5,5-dimethyl-4-[(2-(4-pyridinyl)ethenyl)-2(5H)-furylidene]-2(1H)-pyridinylidene] - (CA INDEX NAME)

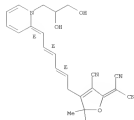
143 ANSWER 19 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

Double bond geometry as shown.

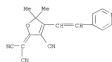


RII 712273-89-7 CAPLUS
 CH Propanedinitrile, 2-[3-cyano-4-[(2E,4E,6E)-6-[1-(2,3-dihydroxypropyl)-2(1H)-pyridinylidene]-2,4-heptadien-1-yl]-5,5-dimethyl-2(5H)-furylidene]-2(1H)-pyridinylidene] - (CA INDEX NAME)

Double bond geometry as shown.



143 ANSWER 20 OF 20 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



10560670.trn

=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

L1 STRUCTURE UPLOADED
L2 0 S L1
L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010

L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010

L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010

L6 172 SEA L5
L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010

L8 0 S OTOPHORE
L9 1 S OPTOPHORE
L10 0 S L3 AND L9
L11 12 S L4 OR L9
L12 26 S ELECTRO-OPTIC CHROMOPHORES

10560670.trn

L29 FILE 'CAPLUS' ENTERED AT 15:18:50 ON 07 JUN 2010
L30 90 S L27
13 S L28

L31 FILE 'REGISTRY' ENTERED AT 15:19:23 ON 07 JUN 2010
1 S L27 AND HYDROXYETHYL

L32 FILE 'CAPLUS' ENTERED AT 15:20:35 ON 07 JUN 2010
L33 6 S L31
L34 19 S L32 OR L30
L35 4286 S MEROCYANINE
L36 91 S L34 AND REVIEW/DT
L37 0 S L35 AND FURNA
L38 0 S L35 AND FURAN
9 S L34 AND FURAN

FILE 'STNGUIDE' ENTERED AT 15:43:31 ON 07 JUN 2010

L39 FILE 'REGISTRY' ENTERED AT 16:06:27 ON 07 JUN 2010
L40 STRUCTURE UPLOADED
L41 50 S L39
L42 947 S L39 FULL
54 S L41 AND C5N/RF

L43 FILE 'CAPLUS' ENTERED AT 16:09:52 ON 07 JUN 2010
20 S L42

10560670.trn

2049 C2NS/RF
L44 0 L41 AND C2NS/RF

=> s l41 and c3ns/rf
2112373 C3NS/RF
L45 19 L41 AND C3NS/RF

=> s l41 and c3nSe/rf
16698 C3NSE/RF
L46 0 L41 AND C3NSE/RF

=> s l41 and c3SeN/rf
0 C3SEN/RF
L47 0 L41 AND C3SEN/RF

=> s l41 and Se/els
195781 SE/ELS
L48 0 L41 AND SE/ELS

=> s l41 and Se/es
0 SE/ES
L49 0 L41 AND SE/ES

=> s l41 and c2no/rf
470 C2NO/RF
L50 0 L41 AND C2NO/RF

10560670.trn

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

L1 STRUCTURE UPLOADED

L2 0 S L1

L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010

L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010

L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010

L6 172 SEA L5

L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010

L8 0 S OTOPHORE

10560670.trn

L27 FILE 'REGISTRY' ENTERED AT 15:16:51 ON 07 JUN 2010
6 S L25 AND 5<=REF.CAPLUS
L28 19 S L25 NOT L27

L29 FILE 'CAPLUS' ENTERED AT 15:18:50 ON 07 JUN 2010
90 S L27
L30 13 S L28

L31 FILE 'REGISTRY' ENTERED AT 15:19:23 ON 07 JUN 2010
1 S L27 AND HYDROXYETHYL

L32 FILE 'CAPLUS' ENTERED AT 15:20:35 ON 07 JUN 2010
6 S L31
L33 19 S L32 OR L30
L34 4286 S MERCYANINE
L35 91 S L34 AND REVIEW/DT
L36 0 S L35 AND FURNA
L37 0 S L35 AND FURAN
L38 9 S L34 AND FURAN

FILE 'STNGUIDE' ENTERED AT 15:43:31 ON 07 JUN 2010

L39 FILE 'REGISTRY' ENTERED AT 16:06:27 ON 07 JUN 2010
STRUCTURE UPLOADED
L40 50 S L39
L41 947 S L39 FULL

151 ANSWER 1 OF 10 CAPLUS COPYRIGHT 2010 ACS on SYN
2010/104217 Document No. 152156918 Toward highly efficient NLO
chromophores: Synthesis and properties of heterocycle-based

electronically
gradient dipolar NLO chromophores. Ma, Xiaohang Ma, Fei Zhao, Zhenhua
Song, Nanyang Zhao, *Journal of Polymer Science: Part A: Polymer Chemistry*,
Ministry of Education, Department of Polymer Science and Engineering, College
of Chemistry and Molecular Engineering, Peking University, Beijing, 100871,
People's Rep. China. *Journal of Polymer Science: Part A: Polymer Chemistry*,
[English] 2010 CODEN: JMACEP. ISBN: 0887-624X. Publisher: Royal
Society of Chemistry.

AB To realize efficient nonlinear optical (NLO) chromophores with optimized
ground-state polarization and very large mol. optical nonlinearities, a
novel series of heterocycle-based electronically gradient dipolar
chromophores were designed and synthesized. These chromophores are
featured by their main strong electron acceptor (i.e.,
2-cyano-5-phenyl-3-oxo-4,5,6-trimethyl-5,5-dihydrofuran, TCP) and the
same length of π -conjugation, but different electron donors (e.g.,
diarylamines and diarylanilines), different heterocycles, with varying
electron densities (i.e., pyrrole, thiophene, and benzene) as the
auxiliary donor, and electron-poor 1,3-heterocyclic thiazole with
different

repeat structures (e.g., either electron-poor C2, "matched", or
electron-rich C5, "un-matched", is connected to the acceptor) as the
auxiliary acceptor, which allows for a systematic fine-tuning of the
ground-state polarization. The gradient electronic structures and
optical

properties of these NLO chromophores were carefully characterized by IR
NMR, UV, IR, and hyper-Rayleigh scattering experiments. All the NLO
chromophores exhibited very large static mol. first hyperpolarizabilities
[β_0] in the range of $450\text{--}960 \times 10^{-30}$ esu, which showed
significant dependence on the gradient electronic structures. Upon using
electron-rich heterocyclic cycle as the auxiliary donor, "matched"

thiazole
as the auxiliary acceptor, and/or diarylaniline as the electron donor,
substantially enhanced β were obtained. These studies were carried out
to understand the structure-property relationships, which showed that
multiple states contribute to the total β values of this
series of NLO chromophores. TGA investigations showed excellent thermal
stability for most of the resulting NLO chromophores, with on-set temps.
for thermal decomposition higher than 350°C . The very large β_0
values coupled with the high thermal stability indicates good application
potential of this series of NLO chromophores.

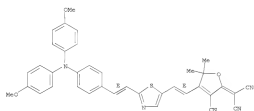
1T 1215601-89-19 1215601-90-09 1215601-91-19
1215601-94-49 1215601-94-49 1215601-94-49
NLO PREP (Physical, engineering or chemical process); PREP (Properties);

SYN [Synthetic preparation]; TGA (Thermal or engineered material use); PREP
[Preparation]; PREP (Process); PREP (Preparation)
Toward highly efficient NLO chromophores and synthesis and properties
of heterocycle-based electronically gradient dipolar NLO chromophores)

RU 1215601-89-1 CAPLUS
CN Preparednitrile, 2-[3-cyano-6-(1H-2-[2-(1H-2-[4-(
dibutylamino)phenyl]ethenyl)-5-thiazolyl]ethenyl)-3,5-dimethyl-2-(1H-
furylidenyl)]- (CA INDEX NAME)

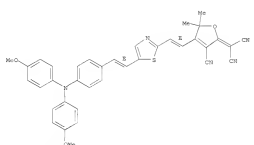
151 ANSWER 1 OF 10 CAPLUS COPYRIGHT 2010 ACS on SYN (Continued)
methoxyphenylamino]phenyl]ethenyl)-5-thiazolyl]ethenyl]-3-cyano-5,
dimethyl-2-(1H-furylidenyl)]- (CA INDEX NAME)

Double bond geometry as shown.



RU 1215601-86-6 CAPLUS
CN Preparednitrile, 2-[4-(1H-2-[2-[5-(1H-2-[4-(
methoxyphenylamino)phenyl]ethenyl)-2-thiazolyl]ethenyl)-3-cyano-5,
dimethyl-2-(1H-furylidenyl)]- (CA INDEX NAME)

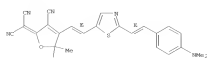
Double bond geometry as shown.



RU 1215601-86-8 CAPLUS
CN Preparednitrile, 2-[3-cyano-5,5-dimethyl-4-(1H-2-[4-(1H-2-[5-(1-
piperidyl)]-2-thienyl]ethenyl)-2-thiazolyl]ethenyl]-2-(1H-furylidenyl)-
(CA INDEX NAME)

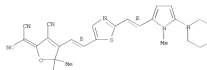
Double bond geometry as shown.

151 ANSWER 1 OF 10 CAPLUS COPYRIGHT 2010 ACS on SYN (Continued)
Double bond geometry as shown.



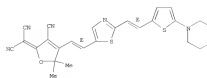
RU 1215601-90-0 CAPLUS
CN Preparednitrile, 2-[3-cyano-5,5-dimethyl-4-(1H-2-[4-(1H-2-[5-(1-
piperidyl)]-2-thienyl]ethenyl)-2-thiazolyl]ethenyl]-2-(1H-furylidenyl)-
(CA INDEX NAME)

Double bond geometry as shown.



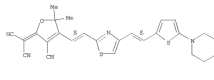
RU 1215601-91-1 CAPLUS
CN Preparednitrile, 2-[3-cyano-5,5-dimethyl-4-(1H-2-[4-(1H-2-[5-(1-
piperidyl)]-2-thienyl]ethenyl)-2-thiazolyl]ethenyl]-2-(1H-furylidenyl)-
(CA INDEX NAME)

Double bond geometry as shown.



RU 1215601-94-4 CAPLUS
CN Preparednitrile, 2-[4-(1H-2-[2-[5-(1H-2-[4-(dibutylamino)phenyl]ethenyl)-2-thiazolyl]ethenyl)-3,5-dimethyl-2-(1H-furylidenyl)]- (CA INDEX NAME)

151 ANSWER 1 OF 10 CAPLUS COPYRIGHT 2010 ACS on SYN (Continued)



151 ANWER 2 OF 10 CAPLOS COPYRIGHT 2010 ACS on STM
2009:161431 Document No. 150:4594270 Modulated Conjugation as a Means of Improving the Intrinsic Hyperpolarizability. Pareo-Moreno, Javier; Zhao, Ting; Clarys, Koen; Kuzko, Mark S.; Shen, Yuhang; Gu, Hong; Hao, Zhen; Guo, Pingping (Department of Chemistry, University of Leoben, Leoben, S-8010, A-8010, Austria). Journal of the American Chemical Society, 131(14), 5044-5051 (English) 2009. CODEN: JACSAT. ISSN: 0002-7863. OTHER SOURCE: CHEMPACT 150:459427. Publisher: American Chemical Society.

AB A new strategy for optimizing the 1st hyperpolarizability based on the concept of a mediated conjugated path in linear molecules was studied.

Seven novel chromophores with different types of conjugated paths were synthesized and characterized. Raman-Rayleigh scattering experiments confirmed

that mediated conjugation paths that include benzene, thiophene, and/or thiazole rings in combination with *exo* and/or ethynyl linkages between alkyldiarylamino donor groups and various acceptor groups result in enhanced intrinsic hyperpolarizabilities that exceed the long-standing apparent limit for the chromophores. The results are analyzed and interpreted in the context of quantum limits, which show

conjugation modulation of the bridge in donor/acceptor molecules simultaneously optimizes the transition moments and the energy-level spacing.

17 716378-72-29
SI: PEP (Properties); STM (Synthetic Preparation); PEP (Preparation) (Mediated conjugation as means of improving intrinsic hyperpolarizability)

NI 716378-72-2 CAPLOS
CI Propanedinitrile, 2-[4-[[2-[[2-[[4-[bis(2-
hydroxyethyl)amino]phenyl]diethyl]-4-chloro-2-thiazolyl]ethenyl]-3-cyano-5,5-dimethyl-2(1H)-furyl]idene]- (CA INDEX NAME)



151 ANWER 3 OF 10 CAPLOS COPYRIGHT 2010 ACS on STM
2008:411128 Document No. 149:79058 Order of magnitude effects of thiazole regioisomerism on the near-IR two-photon cross-sections of dipolar chromophores. Schmidt, Katrin; Leclercq, Nicolas; Boyer, Robert; Lawson, Padmini V.; Jang, Sei-Pyoung; Barlow, Stephen; Jen, Alex X.-Y.; Marder, S. R.; Brédas, Jean-Luc (School of Chemistry and Biochemistry and Center for Organic Photonics and Electronics, Georgia Institute of Technology, Atlanta, GA, 30332-0400, USA). Advanced Functional Materials, 18(15), 1794-1801 (English) 2008. CODEN: AFMDFC. ISSN: 1616-301X. Publisher: Wiley-VCH Verlag GmbH & Co. KGaA.

AB We have investigated computationally the two-photon absorption (2PA) properties of donor-acceptor dipolar chromophores, the conjugated backbones of which contain two five-membered heterocyclic groups which

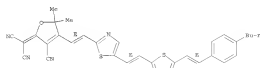
may be electron-rich (thiophene-2,5-diyl) and/or electron-deficient (thiazole-2,5-diyl). Quantumchemical analyses (TDSD/ROSCF/86-tesoro and Sum-Over-States analyses, based on 2PT-optimized geometries) indicate that the two-photon cross-sections into the lowest two excited states S1 and

S2 can be tuned by more than an order of magnitude by varying the nature, order, and, in the case of thiazole, orientation of the heterocycles. Going from one thiazole regioisomer to the other has the strongest impact on the 2PA spectra and can even invert the ratio between the 2PA cross-sections of S1 and S2. An essential-state anal. reveals that different channels dominate 2PA into S1 and S2. The sensitivity of 2PA into S1 towards the orientation of the thiazole ring stems from a local modification on the thiazole orientation affects 2PA into S2 via the transition dipole moment between S1 and S2, and

17 1034158-71-3 1034158-72-9 1034158-73-0
1034158-74-1 1034158-75-2 1034158-76-1
SI: PEP (Properties)
(order of magnitude effects of thiazole regioisomerism on near-IR two-photon cross-sections of dipolar chromophores)

NI 1034158-72-4
CI Propanedinitrile, 2-[4-[[1(1E)-2-[5-[[1(1E)-2-[4-butyphenyl]ethenyl]-3-thiazolyl]ethenyl]-3-thiazolyl]ethenyl]-3-cyano-5,5-dimethyl-2(1H)-furyl]idene]- (CA INDEX NAME)

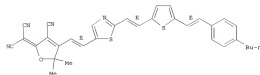
Double bond geometry as shown.



NI 1034158-72-9 CAPLOS
CI Propanedinitrile, 2-[4-[[1(1E)-2-[5-[[1(1E)-2-[4-butyphenyl]ethenyl]-3-thiazolyl]ethenyl]-3-thiazolyl]ethenyl]-3-cyano-5,5-dimethyl-2(1H)-furyl]idene]- (CA INDEX NAME)

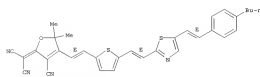
151 ANWER 2 OF 10 CAPLOS COPYRIGHT 2010 ACS on STM (Continued)

151 ANWER 3 OF 10 CAPLOS COPYRIGHT 2010 ACS on STM (Continued)
Double bond geometry as shown.



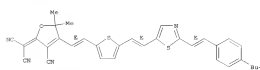
NI 1034158-73-0 CAPLOS
CI Propanedinitrile, 2-[4-[[1(1E)-2-[5-[[1(1E)-2-[5-[[1(1E)-2-[4-butyphenyl]ethenyl]-3-thiazolyl]ethenyl]-3-thiazolyl]ethenyl]-3-cyano-5,5-dimethyl-2(1H)-furyl]idene]- (CA INDEX NAME)

Double bond geometry as shown.



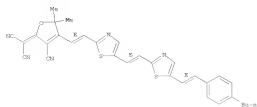
NI 1034158-74-1 CAPLOS
CI Propanedinitrile, 2-[4-[[1(1E)-2-[5-[[1(1E)-2-[5-[[1(1E)-2-[4-butyphenyl]ethenyl]-3-thiazolyl]ethenyl]-3-thiazolyl]ethenyl]-3-cyano-5,5-dimethyl-2(1H)-furyl]idene]- (CA INDEX NAME)

Double bond geometry as shown.

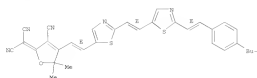


NI 1034158-75-2 CAPLOS
CI Propanedinitrile, 2-[4-[[1(1E)-2-[5-[[1(1E)-2-[5-[[1(1E)-2-[4-butyphenyl]ethenyl]-3-thiazolyl]ethenyl]-3-thiazolyl]ethenyl]-3-cyano-5,5-dimethyl-2(1H)-furyl]idene]- (CA INDEX NAME)

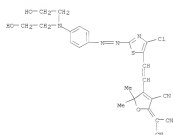
Double bond geometry as shown.



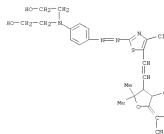
FN 1074113-76-7 CAPLUS
 CN Propenadinitrile, 2-[4-[(1E)-2-[2-[(1E)-2-[2-[(1E)-2-[4-butyloxy]ethenyl]-5-thiazolyl]ethenyl]-5-thiazolyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furan-2-ylidene]- (CA INDEX NAME)
 Double bond geometry as shown.



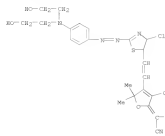
L51 ANSWER 4 OF 10 CAPLUS COPYRIGHT 2010 ACS on STM
 2007:1205147 Document No. 148:765450 Record-high intrinsic hyperpolarizabilities for polymeric electro-optic modulators. Persi-Monemo, Xavier; Asselberghs, Inge; Zhao, Yulia; Somo, Raj; Nakanishi, Naohiro; Okada, Shuji; Negi, Ryotaro Kim, Oh-Kilyu Je, Jongtae; Malac, Janja; De Maeyer, Marc; Rayb, Mark C.; Clays, Koen (Department of Chemistry, Univ. of Leuven, Louvain, B-3001, Belg.). Proceedings of SPIE-The International Society for Optical Engineering, 6713(Hanphotonic and Microphotonic for Space Environments), 671307/1-671307/14 (English) 2007. CODEN: P512DQ. ISSN: 0277-786X. Publisher: SPIE-The International Society for Optical Engineering.
 AB The results of three independently strategies for the optimizations of electro-optic organic chromophores is presented. The first strategy to enhance the nonlinear optical response, applied at the mol. level, is the extension of the conjugation path in a ionic chromophore. The second strategy, applied at the supramol. level, is the bottom-up nano-engineering of an inclusion complex of the ionic chromophore in an amylose helix. The third strategy, also applied at the mol. level, is to use a modulated conjugation path between donor and acceptor in order to localize eigenfunctions on different parts of the mol. The first hyperpolarizability of the different series of compds. has been optl. determined by frequency-resolved femtosecond hyper-Rayleigh scattering. The effects of the three different enhancement strategies are analyzed and interpreted in terms of the quantum limits.
 IT 716379-72-2
 RI: FFP (Physical, engineering or chemical process); FFP (Properties); FPOC (Processes)
 (Record-high intrinsic hyperpolarizabilities for polymeric electro-optic modulators)
 FN 716379-72-2 CAPLUS
 CN Propenadinitrile, 2-[4-[(1E)-2-[2-[(1E)-2-[2-[(1E)-2-[4-butyloxy]ethenyl]-5-thiazolyl]ethenyl]-5-thiazolyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furan-2-ylidene]- (CA INDEX NAME)



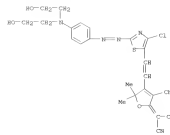
L51 ANSWER 5 OF 10 CAPLUS COPYRIGHT 2010 ACS on STM
 2007:1188150 Document No. 148:293179 Modulated conjugation for record-high intrinsic hyperpolarizabilities. Persi-Monemo, Xavier; Clays, Koen; Rayb, Mark C.; Zhao, Yulia; Somo, Raj; Nakanishi, Naohiro; Okada, Shuji; Negi, Ryotaro Kim, Oh-Kilyu Je, Jongtae; Malac, Janja; De Maeyer, Marc; Rayb, Mark C.; Clays, Koen (Department of Chemistry, Univ. of Leuven, Louvain, B-3001, Belg.). Proceedings of SPIE-The International Society for Optical Engineering, 6653(Linear and Nonlinear Optics of Organic Materials VII), 66530M/1-66530M/9 (English) 2007. CODEN: P512DQ. ISSN: 0277-786X. Publisher: SPIE-The International Society for Optical Engineering.
 AB The effects of a complex hybrid conjugation path in linear mole. as an strategy to optimize the intrinsic first hyperpolarizability is investigated. A series of 7 novel chromophores with different hybrid conjugation paths were synthesized and characterized. Hyper-Rayleigh scattering exps. confirm that complex hybrid conjugation paths, including benzene, thiophene and/or thiazole rings in combination with aryl- and/or ethynyl-linkages, between a dihydroxyethylamine donor group and different acceptor groups, results in an enhanced intrinsic hyperpolarizability that exceed the apparent limit for two of the chromophores.
 IT 1008299-91-9
 RI: FFP (Properties)
 (modulated conjugation for record-high intrinsic hyperpolarizabilities)
 FN 1008299-91-9 CAPLUS
 CN Propenadinitrile, 2-[4-[(2E)-2-[2-[(4E)-2-[4-bis(2-hydroxyethylamino)phenyl]diazenyl]-4-chloro-5-thiazolyl]ethenyl]-3-cyano-5,5-dimethyl-2(3H)-furan-2-ylidene]- (CA INDEX NAME)



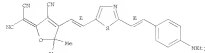
- 151 ANHWA 6 OF 10 CAPLUS COPYRIGHT 2010 ACS on STM
200719107 Document No. 146179495 Modulated conjugation as a means for
attaining a record high intrinsic hyperpolarizability. Perez-Moreno,
Javier; Shaw, David; Clay, Koenig; Ray, Mark S. (Department of
Chemistry,
University of Leuven, Leuven, B-3001, Belg.). Optics Letters, 32(1),
59-61 (Feb 2007). CODEN OPLEDP. ISSN: 0146-9592. Publisher:
Optical Society of America.
- AS We report on a series of chromophores that have been synthesized with a
modulated conjugation path between donor and acceptor. Hyper-Rayleigh
scattering measurements of the neat mol. show an enhanced intrinsic
hyperpolarizability that reaches the apparent limit of all previously
studied mol.
- IT 970449-59-2
RI PEP (Properties)
Modulated conjugation as means for attaining high intrinsic
hyperpolarizability
- AS 970449-59-2 CAPLUS
- CS Propagendinitrile, 2-[4-(2-[12-[14-[bis(2-
hydroxyethyl)amino]phenyl]diacetyl]-4-chloro-6,5-dihydro-5-
thiazolyl)ethyl]-3-cyano-5,5-dimethyl-2(5H)-furan-5-ylidene]- (CA INDEX
NAME)



- 151 ANHWA 7 OF 10 CAPLUS COPYRIGHT 2010 ACS on STM
2006192359 Document No. 146149979 Modulated conjugation as a means for
reaching the apparent limit of the hyperpolarizability. Perez-Moreno,
Javier; Clay, Koenig; Shaw, David; Ray, Mark S. (Department of
Chemistry,
University of Leuven, Leuven, B-3001, Belg.). Los Alamos National
Laboratory, Preprint Archive, Physics 1-3, arxiv:physics/0608300
(English)
- 31 Aug 2006. CODEN LSEPEP. URL:
<http://arxiv.org/ftp/physics/papers/0608/0608300.pdf> Publisher:
Los
Alamos National Laboratory.
- AS Chromophores that were synthesized with a modulated conjugation path
between donor and acceptor are reported. Hyper-Rayleigh scattering
measurements of the neat mol. show an enhanced hyperpolarizability that
reaches the apparent limit.
- IT 716376-72-2
RI PEP (Properties)
Modulated conjugation as means for enhancing apparent limit of
hyperpolarizability of)
- AS 716376-72-2 CAPLUS
- CS Propagendinitrile, 2-[4-(2-[12-[14-[bis(2-
hydroxyethyl)amino]phenyl]diacetyl]-4-chloro-5-thiazolyl)ethyl]-3-cyano-
5,5-dimethyl-2(5H)-furan-5-ylidene]- (CA INDEX NAME)



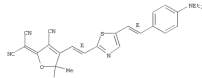
- 151 ANHWA 8 OF 10 CAPLUS COPYRIGHT 2010 ACS on STM
2005107039 Document No. 146120132 Frequency-agile hyper-Rayleigh
scattering studies of electro-optic chromophores. Firestone, Kimberly
A.-
Lao, David S.; Cammer, Daniel M.; Clay, Olivier; Dalton, Larry R.; Reid,
Philip J. (Department of Chemistry, Univ. of Washington, Seattle, WA,
98195-1302, USA). Proceedings of SPIE-The International Society for
Optical Engineering, 5737 (Linear and Nonlinear Optics of Organic
Materials
VI), 551539/1-16 (2005). CODEN PROEOB. ISSN: 0277-786X.
Publisher: SPIE-The International Society for Optical Engineering.
- AS Hyper-Rayleigh scattering (HRS) is used to measure the
first hyperpolarizability (β) of electro-optic (EO) chromophores.
One of the inherent concerns in any HRS measurement is the extent to
which
resonant enhancement contributes to the observed intensity thereby
leading to
inaccuracies when evaluating chromophore potential for application in
electro-optical devices. One way to address this concern is to employ
increasingly longer excitation wavelengths far from resonance. However,
in charge-transfer-based non-linear optical chromophores, enhanced β
generally correlates with a red-shift of the charge transfer absorption
band so that even at the longest excitation wavelengths generally
employed.
- AS In HRS studies, resonant enhancement remains an issue. We have adopted
an
alternative approach in which the wavelength dispersion of the HRS
intensity is determined by performing measurements at a variety of
excitation
wavelengths. This approach allows one to ascertain the role of resonance
enhancement thereby allowing for more accurate correlation of improved
 β with mol. architecture. We report the results of our HRS studies
for nine chromophores employing excitation wavelengths ranging from 700
to
1507 nm. Our HRS results demonstrate good agreement with the predictions
of a functional theory. This synthesis of exptl. and theor. techniques
has resulted in more effective design for the next generations of
electro-optical chromophores.
- IT 87803-07-4 87803-07-7
RI PEP (Properties)
Frequency-agile hyper-Rayleigh scattering studies of electro-optic
chromophores
- AS 87803-07-4 CAPLUS
- CS Propagendinitrile, 2-[3-cyano-6-[(1E)-2-[2-[(1E)-2-[4-
(diethylamino)phenyl]ethyl]-5-thiazolyl]ethyl]-5,5-dimethyl-2(5H)-
furan-5-ylidene]- (CA INDEX NAME)
- Double bond geometry as shown.



AS 87803-07-7 CAPLUS

- 151 ANHWA 9 OF 10 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)
CN Propagendinitrile, 2-[3-cyano-6-[(1E)-2-[2-[(1E)-2-[4-
(diethylamino)phenyl]ethyl]-5-thiazolyl]ethyl]-5,5-dimethyl-2(5H)-
furan-5-ylidene]- (CA INDEX NAME)

Double bond geometry as shown.



L51 ANSWER 9 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN
2005:358523 Document No. 143:777830 Two-Photon Absorption at
Telecommunications Wavelengths in a Dipolar Chromophore with a Pyrrole
Auxiliary Donor and Thiazole Auxiliary Acceptor. Boccardo, Luca; Fu-

Leclercq, Analia; Sojer, Eibert; Pachter, Peter; Barlow, Stephen; Van Styland, Eric M.; Nagai, David J.; Bredas, Jean-Luc; Marder, Seth R. (School of Chemistry and Biochemistry, Center for Organic Photonics and Electronics, Georgia Institute of Technology, Atlanta, GA, 30332-0400, USA). *Journal of the American Chemical Society*, 127(20), 7282-7283 (English) 2005. CODEN: JACSAT. ISSN: 0002-7863. OTHER SOURCES:

143:77783. Publishers: American Chemical Society.

have measured a very large non-degenerate two-photon cross section of 1500 GM in the near-IR telecommunications range using a pump-probe technique. Calculations indicate the cross section for degenerate two-photon absorption is likely to be on the order of 50% of this value.

KL: FFP (Properties); STG (Synthetic preparation); PREP (Preparation)
[two-photon absorption at telecommunications wavelengths in a dipol.
chromophore with a pyrrole auxiliary donor and thiazole auxiliary

151 ANHSEN 10 OF 10 CAPLUS COPIRIGHT 2010 ACS ON ST
2004/211926 Document No. 141946181 Study on novel se
arobased
chromophores containing strong electron-withdrawn
coagulated bridges. Gu, Ling; Shen, Yuzhan; Hao,
Fu; Fenghua; Zhang, Tao; Zhao, Yuxian; Clay, Y. F.
Institute of Physics and Chemistry, Chinese Academ
100351, Peop. Rep. China). Journal of Materials S
2335
(English) 2004. CODEN: JMRASR. ISSN: 0022-2461.
Academic Publishers.

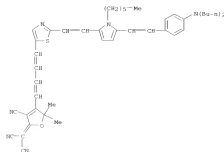
151 ANSWER 10 OF 10 CAPLUS COPYRIGHT 2010 ACS on STN
2004:211926 Document No. 141:96181 Study on novel second-order NLO
ato-based

160103. Bao, Ren. China. *Journal of Materials Science*, 19(7), 1984, 1601-1603, 1603 refs.

2335-2340
(English) 2004. CODEN: JMTSAS. ISSN: 0022-2461. Publisher: Kluwer Academic Publishers.
AB Novel NLO azo-based chromophores containing strong electron-withdrawing

[illegible]

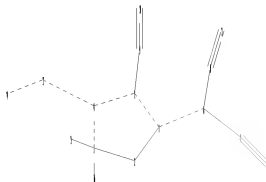
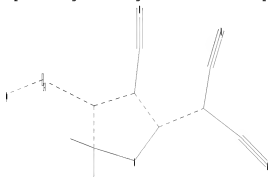
151 ANSWER 2 OF 10 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)



10560670.trn

=>

Uploading C:\Program Files\Stnexp\Queries\10560070-66.str



chain nodes :

6 7 8 9 14

ring nodes :

1 2 3 4 5

ring/chain nodes :

10 11 12 13 15 16

chain bonds :

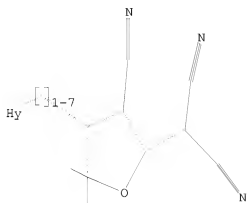
1-6 3-15 3-16 4-13 5-9 6-7 6-8 7-12 8-11 9-10

ring/chain bonds :

13-14

ring bonds :

10560670.trn



Structure attributes must be viewed using STN Express query preparation.

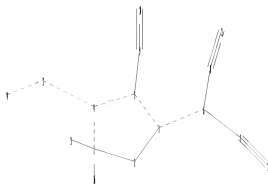
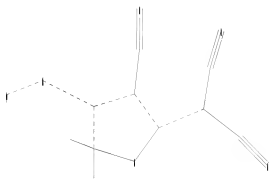
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REGISTRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress...

Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

10560670.trn

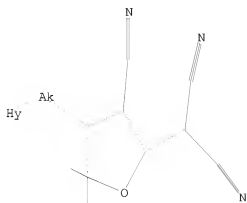


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chain nodes :
6 7 8 9 13 14
ring nodes :
1 2 3 4 5
ring/chain nodes :
10 11 12 15 16
chain bonds :
1-6 3-15 3-16 4-13 5-9 6-7 6-8 7-12 8-11 9-10 13-14
ring bonds :
1-2 1-5 2-3 3-4 4-5
exact/norm bonds :
1-2 1-5 1-6 2-3 3-4 4-5 4-13 7-12 8-11 9-10 13-14

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10560670.trn



Structure attributes must be viewed using STN Express query preparation.

=> s 153

REGISTRY INITIATED

Substance data SEARCH and crossover from CAS REGISTRY in progress...

Use DISPLAY HITSTR (or FHITSTR) to directly view retrieved structures.

10560670.trn

STRUCTURE FILE UPDATES: 3 JUN 2010 HIGHEST RN 1226953-63-4
DICTIONARY FILE UPDATES: 3 JUN 2010 HIGHEST RN 1226953-63-4

New CAS Information Use Policies, enter HELP USAGETERMS for details.

TSCA INFORMATION NOW CURRENT THROUGH January 8, 2010.

Please note that search-term pricing does apply when
conducting SmartSELECT searches.

REGISTRY includes numerically searchable data for experimental and
predicted properties as well as tags indicating availability of
experimental property data in the original document. For information
on property searching in REGISTRY, refer to:

<http://www.cas.org/support/stngen/stdoc/properties.html>

=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

L1 STRUCTURE UPLOADED
L2 0 S L1
L3 14 S L1 FULL

10560670.trn

L19 TRA L17 1- RN : 3023 TERMS

FILE 'REGISTRY' ENTERED AT 15:05:14 ON 07 JUN 2010

L20 3023 SEA L19

L21 214 S L20 AND C5N/RF

L22 21 S L21 AND PROPANEDINITRILE

L23 5 S L21 AND DICYANOMETHYLENE

L24 25 S L22 OR L23

L25 25 S L24 NOT L3

FILE 'CAPLUS' ENTERED AT 15:14:48 ON 07 JUN 2010

L26 99 S L25

FILE 'CAPLUS' ENTERED AT 15:15:01 ON 07 JUN 2010

FILE 'REGISTRY' ENTERED AT 15:16:51 ON 07 JUN 2010

L27 6 S L25 AND 5<=REF.CAPLUS

L28 19 S L25 NOT L27

FILE 'CAPLUS' ENTERED AT 15:18:50 ON 07 JUN 2010

L29 90 S L27

L30 13 S L28

FILE 'REGISTRY' ENTERED AT 15:19:23 ON 07 JUN 2010

L31 1 S L27 AND HYDROXYETHYL

FILE 'CAPLUS' ENTERED AT 15:20:35 ON 07 JUN 2010

10560670.trn

FILE 'CAPLUS' ENTERED AT 16:13:19 ON 07 JUN 2010
L51 10 S L45
L52 STRUCTURE UPLOADED
S L52

FILE 'REGISTRY' ENTERED AT 16:16:10 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 16:16:10 ON 07 JUN 2010
L53 STRUCTURE UPLOADED
S L53

FILE 'REGISTRY' ENTERED AT 16:17:35 ON 07 JUN 2010
L54 23 S L53

FILE 'CAPLUS' ENTERED AT 16:17:36 ON 07 JUN 2010
L55 48 S L54

FILE 'REGISTRY' ENTERED AT 16:17:41 ON 07 JUN 2010

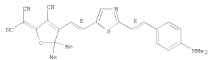
=> s sub=l41 sam l55
SUBSET AND SAMPLE ARE IGNORED FOR THIS SEARCH
L56 23 L54

=> s sub=l41 sam l53
SAMPLE SUBSET SEARCH INITIATED 16:18:14 FILE 'REGISTRY'
SAMPLE SUBSET SCREEN SEARCH COMPLETED - 52 TO ITERATE

10560670.trn

157 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[5-cyano-4-[[1(R)-2-[2-[[1(R)-2-[4-
 (dimethylamino)phenyl]ethenyl]-5-thiazolyl]ethenyl]-5,5-dimethyl-2(5H)-
 furanylidene]-
 MF C23 H21 N5 O S

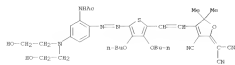
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1) 1

157 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Acetanide, N-[5-[bis(2-hydroxyethyl)amino]-2-[2-[1,4-dibutoxy-5-[2-(4-
 cyano-5-(dicyanomethylidene)-2,5-dihydro-2,2-dimethyl-3-furyl]ethenyl]-2-
 thienyl]idene]phenyl]-
 MF C36 H43 N7 O6 S

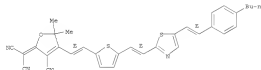


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1) 1

157 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[[1(R)-2-[5-[[1(R)-2-[5-[[1(R)-2-[4-
 butylphenyl]ethenyl]-2-thiazolyl]ethenyl]-2-thienyl]ethenyl]-3-cyano-5,5-
 dimethyl-2(5H)-furyl]idene]-
 MF C33 H29 N4 O S2

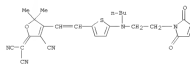
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1) 1

157 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[2-[5-[butylidene-2,5-dihydro-2,5-dioxo-1H-pyrol-1-
 yl]ethyl]amino]-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-
 furanylidene]-
 MF C26 H25 N5 O3 S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1) 1

10560670.trn

157 23 ANIMERS REGISTRY COPYRIGHT 2010 ACS on STN
 (H) 3,3'-isobenzofuranone, 5,5'-[2,2,2-trifluoro-1-
 (trifluoromethyl)ethylidene]bis-, polymer with 2,4-diaminophenol
 dihydrochloride, 4-[[4-[[[18]-2-[[4-(diisopropylamino)-5-
 [[15]-2-[4-cyano-5-(isocyanomethylene)-2,5-dihydro-2-methyl-2-[[4-
 [[trifluoromethyl]oxy]benzoyl]oxy]propyl]-3-cyanophenyl]ethenyl]-2-
 thienyl]ethenyl]-2-thienyl]ethenyl]phenyl]ethylanilino]ethyl] ether
 2,2-bis(medioxysulfate) ester] 4-[[trifluoromethyl]oxy]benzoate
 (water)
 (C1)
 (C1) C15 H11 F3 N4 O12 S2 . x (C19 H6 F6 O6 . C6 H8 N2 O . 2 C1 R1 x . x C9 H5
 F3 O)

***RELATED FORMS AVAILABLE WITH POLYLING**

CH 1

Double bond geometry as shown.

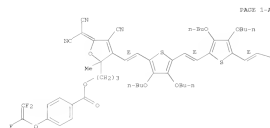
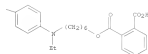


FIGURE 1-B

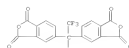


157 23 ANIMERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)



CH 3

CH 4



CH 5

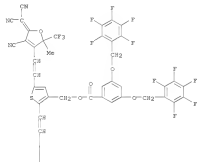


● 2 R1

HOW MANY MORE ANIMERS DO YOU WISH TO SCANT? (1) 11

157 23 ANIMERS REGISTRY COPYRIGHT 2010 ACS on STN
 (H) 16-hydroxy-3-propenoic acid, 2,5-dihydro-2,5-dioxo-,
 2-[[4-[[2-[[3-[[[15]-5-imid[2,3,4,5,6-
 pentalyl]oxy]propyl]methoxy]benzoyl]oxy]methyl]-5-[[2-[[4-cyano-5-
 (isocyanomethylene)-2,5-dihydro-2-methyl-2-(trifluoromethyl)-3-
 furanyl]ethenyl]-2-thienyl]ethenyl]phenyl]ethylanilino]ethyl] ether
 (H) C57 H56 F13 N5 O9 S

FIGURE 1-A



157 23 ANIMERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

PAGE 2-A



PAGE 3-A

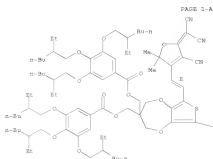


***PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

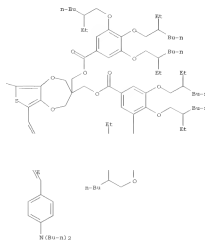
HOW MANY MORE ANIMERS DO YOU WISH TO SCANT? (1) 11

10560670.trn

157 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Benzoic acid, 3,4,5-tris[2-ethylhexyloxy]-
 [6-[(1E)-2-[4-cyano-5-(diacyanomethylene)-5,5-dihydro-2,2-dimethyl-2-
 furanyl]ethenyl]-8-[(1E)-2-[4-(diisopropylamino)phenyl]ethenyl][4,6'-bis-2a-
 thieno[3,4-b][1,4]dioxepin]-3,3'-(4a,4'a')-diylidene]tetrakis(methylene)
 ether (921)
 MF C10 K26G H4 O25 S2
 Double bond geometry as shown.

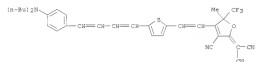


157 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)
 PAGE 1-B



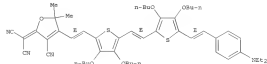
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT
 HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1)1

157 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-4-[2-[5-[4-(4-diisopropylamino)phenyl]-1,3-
 prokaten-1-yl]-2-thienyl]ethenyl]-5-methyl-5-(trifluoromethyl)-2(5b)-
 furanyl]idene)-
 MF C34 H73 F3 N4 O S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT
 HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1)1

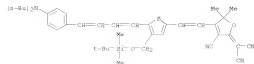
157 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-4-[2-[5-[4-(4-diisopropylamino)phenyl]-1,3-
 dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-
 thienyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-1(3H)-furfurylidene)-
 MF C50 H62 N4 O5 S2
 Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT
 HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1)1

10560670.trn

157 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[5-cyano-4-[2-[5-[4-(4-(diethylamino)phenyl]-3,2-
 butadien-1-yl]-4-[[[5,1-dimethylamyl]dimethylalyl]oxy]methyl]-2-
 thienyl]ethenyl]-3,5-dimethyl-2-[5H]-furylidene]
 MF C41 H52 N4 O2 S R1



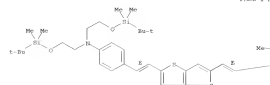
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1)1

157 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[[3E]-2-[5-[1E]-2-[4-[Bis[2-[[[1,1-dimethyl-2-ethoxy]ethoxy]ethyl]oxy]ethyl]amino]phenyl]etheno]-2-bithien-2-yl]ethenyl]-3-cyano-5,1-dimethyl-2-[5H]-furylidene]
 MF C42 H54 N4 O3 S2 R12

Double bond geometry as shown.

PAGE 1-A



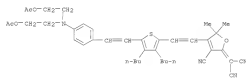
PAGE 1-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1)1

157 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[4-[2-[5-[2-[4-[Bis[2-acetoxyethyl]amino]phenyl]ethenyl]-3,6-dimethyl-2-thienyl]ethenyl]-3-cyano-5,1-dimethyl-2-[5H]-furylidene]
 MF C40 H44 N4 O5 S

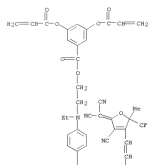


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

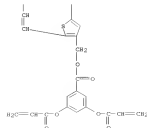
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1)1

157 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Benzoic acid, 3,5-bis[[1-oxo-3-propen-2-yl]oxy]-, [2-[2-[4-[[2-[[[3,5-bis[[1-oxo-3-propen-2-yl]oxy]benzoyl]oxy]ethyl]ethyl]amino]phenyl]ethenyl]-5-[2-[4-cyano-5-dicyanomethylene]-2,5-dihydro-2-methyl-2-(trifluoromethyl)-2-furyl]ethenyl]-2-thienyl]methyl ester
 MF C55 H41 F3 N4 O13 S

PAGE 1-A



PAGE 2-A



10560670.trn

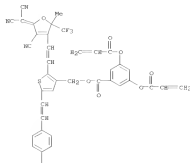
157 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

(Continued)

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

157 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Benzoic acid, 3,5-bis[(1-oxo-2-propen-3-yl)oxy]-,
 [5-[[2-[[4-[[12-[[1,5,5-triaza[13-oxo-2-propen-1-yl]oxy]benzoyl]oxy]ethyl]ethyl]amino]phenyl]ethenyl]-2-[[2-[[4-cyano-5-(diacyanomethylene)-2,5-dihydro-2-methyl-2-(trifluoromethyl)-3-furyl]ethenyl]]-2-thienyl]methyl ester
 MF C55 H41 F3 N4 O13 S

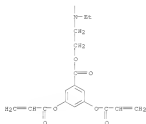
PAGE 1-A



157 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN

(Continued)

PAGE 2-A

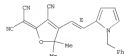


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

157 23 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Proposed nitrile, 2-[[3-cyano-5,5-dimethyl-4-[[11E)-2-[[1-(phenylamethyl)-1H-pyrrrol-2-yl]ethenyl]-2(SH)-furan]idene]-
 MF C29 H28 N4 O

Double bond geometry as shown.

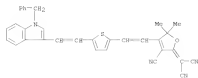


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

10560670.trn

157 23 ANNNERS REGISTRY COPYRIGHT 2010 ACS on STN
 2H Propenedinitrile,
 2-[3-cyano-5,5-dimethyl-4-[2-[5-[2-[1-(phenylmethyl)-1H-
 indol-2-yl]ethenyl]-2-thienyl]ethenyl]-2(1H)-furylidene]-
 MF C33 H24 N4 O S

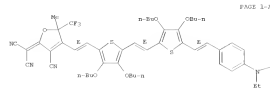


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1) 1

157 23 ANNNERS REGISTRY COPYRIGHT 2010 ACS on STN
 2H Propenedinitrile, 2-[3-cyano-4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[5,4-
 dibutoxy-5-[(1E)-2-[4-[16-[(11,1-
 dimethylthio]2-dimethylthio]thienyl]ethylanino]phenyl]ethenyl]-2-
 thienyl]ethenyl]-2-thienyl]ethenyl]-5-methyl-5-(trifluoroethyl)-2(1H)-
 furylidene]-
 MF C60 H83 F3 N4 O6 S2 Sx

Double bond geometry as shown.



PAGE 1-A

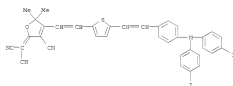
PAGE 1-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1) 1

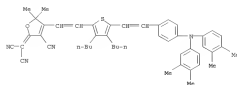
157 23 ANNNERS REGISTRY COPYRIGHT 2010 ACS on STN
 2H Propenedinitrile,
 2-[4-[2-[3-[2-[4-[(butyl-iodophenyl)amino]phenyl]ethenyl]-
 2-ethyl]ethenyl]-3-cyano-5,5-dimethyl-2(1H)-furylidene]-
 MF C46 H24 I2 N4 O S
 CT C0H



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1) 1

157 23 ANNNERS REGISTRY COPYRIGHT 2010 ACS on STN
 2H Propenedinitrile, 2-[4-[2-[5-[2-[4-[16-[(11,1-
 dimethylthio]2-dimethylthio]thienyl]ethylanino]phenyl]ethenyl]-3-
 cyano-5,5-dimethyl-2(1H)-furylidene]-
 MF C48 H50 N4 O S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1)

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1) 0

10560670.trn

=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

L1 STRUCTURE UPLOADED

L2 0 S L1

L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010

L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010

L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010

L6 172 SEA L5

L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010

L8 0 S OTOPHORE

L9 1 S OPTOPHORE

L10 0 S L3 AND L9

L11 12 S L4 OR L9

L12 26 S ELECTRO-OPTIC CHROMOPHORES

10560670.trn

L29 FILE 'CAPLUS' ENTERED AT 15:18:50 ON 07 JUN 2010
L30 90 S L27
13 S L28

L31 FILE 'REGISTRY' ENTERED AT 15:19:23 ON 07 JUN 2010
1 S L27 AND HYDROXYETHYL

L32 FILE 'CAPLUS' ENTERED AT 15:20:35 ON 07 JUN 2010
L33 6 S L31
L34 19 S L32 OR L30
L35 4286 S MEROCYANINE
L36 91 S L34 AND REVIEW/DT
L37 0 S L35 AND FURNA
L38 0 S L35 AND FURAN
9 S L34 AND FURAN

FILE 'STNGUIDE' ENTERED AT 15:43:31 ON 07 JUN 2010

L39 FILE 'REGISTRY' ENTERED AT 16:06:27 ON 07 JUN 2010
L40 STRUCTURE UPLOADED
L41 50 S L39
L42 947 S L39 FULL
54 S L41 AND C5N/RF

L43 FILE 'CAPLUS' ENTERED AT 16:09:52 ON 07 JUN 2010
20 S L42

10560670.trn

L56 23 S SUB=L41 SAM L55
L57 23 S SAM L53 SUB=L41

=> s sub=l41 full l53
FULL SUBSET SEARCH INITIATED 16:19:23 FILE 'REGISTRY'
FULL SUBSET SCREEN SEARCH COMPLETED - 947 TO ITERATE

100.0% PROCESSED 947 ITERATIONS 471 ANSWERS
SEARCH TIME: 00.00.01

L58 471 SEA SUB=L41 SSS FUL L53

=> s l58 not l42
L59 424 L58 NOT L42

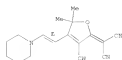
=> s l58 not 45
 98757 45
L60 471 L58 NOT 45

=> d scan 1-
'1-' IS NOT A VALID FORMAT FOR FILE 'REGISTRY'

10560670.trn

LAG 471 ADDRESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Proprietary, 2-[3-cyano-5,5-dimethyl-4-[(1R)-2-[(1-
 piperidinyl)ethoxy]-2-methyl-furanylidene]-
 ME C17 R18 M4 0
 CI COM

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

The following are valid formats:

Substance information can be displayed by requesting individual fields or predefined formats. The predefined substance formats are: (RN = CAS Registry Number)

RNO - RN
 RNM - Index Name, MW, and structure - no RN
 RTE - All substance data, except sequence data
 REX - RTE, but only 5C names
 RQIR - IR, plus sequence data
 RQIRX - Same as RQIR, but 3-letter amino acid codes are used
 RQB - Protein sequence data, includes RN
 RQBX - Same as RQB, but 3-letter amino acid codes are used
 RQI - Protein sequence name information, includes RN
 REXOP - Table of experimental properties
 REXOP - Table of predicted properties
 REXOP - REXOP, EXOP, PEXOP

Any CA File format may be combined with any substance format to obtain CA references citing the substance. The substance format must be cited first. The CA File predefined formats are:

ABS -- Abstract
 APFS -- Application and Priority Information
 RIB -- CA Accession Number, plus Bibliographic Data
 CAN -- CA Accession Number
 CRIB -- CA Accession Number, plus Bibliographic Data (compressed)
 IND -- Index Data
 IPC -- International Patent Classification

LAG 471 ADDRESS REGISTRY COPYRIGHT 2010 ACS on STM (Continued)
 PATS -- PI, SO
 STD -- RIB, IPC, and NCL

IASR -- ABS, indented, with text labels
 IRIB -- RIB, indented, with text labels
 ISTD -- STD format, indented

CRIB ----- RI, plus Bibliographic Data (original)
 CRIB ----- CRIB, indented with text labels

SEIR ----- RIB, no citations
 SEIR ----- SEIR, no citations

The ALL format gives FIDE RIB ARG IND RE, plus sequence data when it is available.
 The NAL format is the same as ALL plus SPEC.
 The TALL format is the same as ALL with RIB ARG IND indented, with text labels.

For additional information, please consult the following help messages:

HELP DISPLAYS -- To see a complete list of individual display fields.
 HELP FORMATS -- To see detailed descriptions of the predefined formats.
 HOW MANY MORE ADDRESSES DO YOU WISH TO SCRAM (?) read

10560670.trn

=> d scan

10560670.trn

140 471 ANDREWS REGISTRY COPYRIGHT 2010 ACS on STN
IN INDEX NAME NOT YET ASSIGNED
MF C111 K117 N9 03 S3

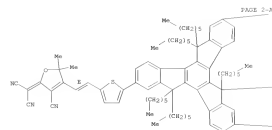
Double bond geometry as shown.

PAGE 1-A



140 471 ANDREWS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

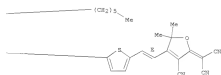
PAGE 1-B



PAGE 2-A

140 471 ANDREWS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

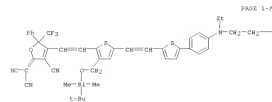
PAGE 2-B



PROPERTY DATA AVAILABLE IN THE 'P90P' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):2000

140 471 ANDREWS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propenedinitrile, 2-[3-oxo-4-[2-[5-[2-[5-[4-[2-[1,1,1-trimethyl-2-thienylethynyl]-5-[[1,1,1-trimethyl-2-thienylethynyl]oxy]methyl]-2-thienylethynyl]-5-phenyl]-2-(trifluoromethyl)-2(5H)-Furanylidene]-CN] H57 F3 H4 G3 H2 H12



PAGE 1-A

PAGE 2-B

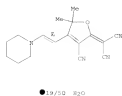


PROPERTY DATA AVAILABLE IN THE 'P90P' FORMAT

10560670.trn

140 471 ANHMER8 REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propenedinitrile, 2-[[3-cyano-5,5-dimethyl-4-[(1R)-2-[[1-piperidinyl]ethenyl]-2(1H)-furyrlydene]-, hydrate (50:19)
 MF C17 H29 N4 O 19/50 S2 O

Double bond geometry as shown.



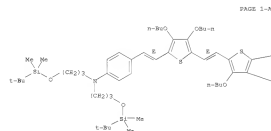
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

140 471 ANHMER8 REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propenedinitrile, 2-[[3-cyano-4-[[5-[4-cyano-5-(dicyanomethyl)-2,2-dimethyl-3(2H)-furyrlydene]-1,3-pentadien-1-yl]-5,5-dimethyl-2(5H)-furyrlydene]-, ion(1-)
 MF C25 H17 N6 O2
 CI C0H



140 471 ANHMER8 REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propenedinitrile, 2-[[4-[(1E)-2-[[5-[(1E)-2-[[4-[[bis[3-[[[1,1-dimethylethyl]dimethylsilyl]oxy]propyl]amino]phenyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3-cyano-5-(4-methoxyethoxyphenyl)-3-(trifluoromethyl)-2(5H)-Furyrlydene]-
 MF C71 H97 F3 N4 O9 S2 S12

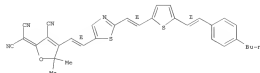
Double bond geometry as shown.



PAGE 1-A

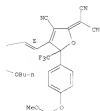
140 471 ANHMER8 REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propenedinitrile, 2-[[4-[(1E)-2-[[2-[(1E)-2-[[5-[(1E)-2-(4-butylphenyl)ethenyl]-2-thienyl]ethenyl]-5-thiazolyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furyrlydene]-
 MF C33 H28 N4 O S2

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

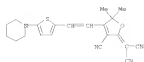
PAGE 1-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

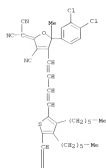
140 471 ANHEMERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Isocyanuric acid, 4-methyl-, compd. with
 2-[3-cyano-5,5-dimethyl-4-[2-[5-[1-piperidinyl]-2-thienyl]ethenyl]-2(1H)-
 furanylidene]propanedinitrile, ion[1-] [517]
 MF C21 H29 N4 O S . CT H7 O3 S
 CH 1



CH 2



140 471 ANHEMERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[4-[4-[5-[2-[4-bis(2-
 mercaptoethyl)amino]phenyl]ethenyl]-3,4-dihexyl-2-thienyl]-1,3-butadien-1-
 yl]-3-cyano-5(3,4-dichlorophenyl)-5-methyl-2(1H)-furanylidene]-, polymer
 with
 1,1'-(2,2',3,3',5,5',6,6'-octafluoro[1,3'-baphenyl]-4,4'-diyl)bis[2H-
 pyrrrole-2,5-dione] and 4,4'-thiodia[benzenethiol]
 MF C47 H52 Cl2 N4 O S3 . C20 H4 F8 N2 O4 . Cl2 H10 S2 S
 CT PMS
 CH 1



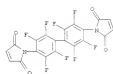
PAGE 1-A



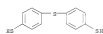
PAGE 2-A

140 471 ANHEMERS REGISTRY COPYRIGHT 2010 ACS on STM (Continued)

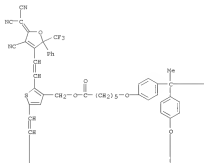
CH 2



CH 3



140 471 ANHEMERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Hexanoic acid, 6,6',6''-[ethylidynetris(4,1-phenyleneoxy)]tris-,
 1,1',1''-tris[2-[2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-phenyl-2-
 (trifluoromethyl)-3-furanyl]ethenyl]-5-[2-[4-[2-[1,1,1-tri-
 dimethylethyl]dimethylsilyloxy]ethyl]methylanilino]phenyl]ethenyl]-3-
 thienyl]methyl] ether
 MF C155 H159 F9 N12 O15 S3 S13
 CH 1

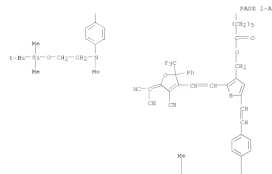
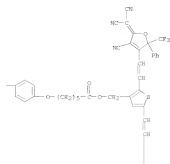


PAGE 1-A

10560670.trn

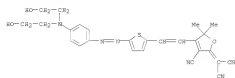
140 471 ANDREWS REGISTRY COPYRIGHT 2010 ACS on SYN (Continued)

PAGE 1-B



140 471 ANDREWS REGISTRY COPYRIGHT 2010 ACS on SYN
 139 Propargylmethyl, 2-[4-{2-[5-{2-[4-{bis[2-hydroxyethyl]amino}phenyl]diazeryl]-2-thienyl}ethenyl]-3-cyano-5,5-dimethyl-2,5-dicyanidene}]

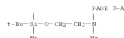
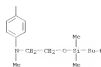
MO C08 R24 NO O3 S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

140 471 ANDREWS REGISTRY COPYRIGHT 2010 ACS on SYN (Continued)

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PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

140 471 ANDREWS REGISTRY COPYRIGHT 2010 ACS on SYN
 139 Ferrocenyl, 1,1'-bis[1(E)-3-{4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-phenyl-2-(trifluoromethyl)-3-furanyl}ethenyl]-
 C44 R22 FE NO O2
 CI CCS

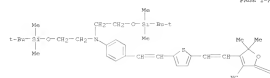


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

140 471 ANHMER5 REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[4-[2-[5-[2-[4-[2-[1,1-dimethyl-2-(2-ethoxyethylamino)phenyl]ethoxy]-2-thienyl]ethoxy]-2-cyano-5,5-dimethyl-2(1H)-furylidene]-furylidene]

MF C40 H54 N4 O3 S 812

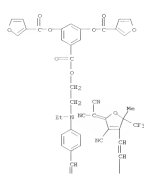


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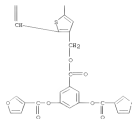


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT
 <-----Data Remark----->

140 471 ANHMER5 REGISTRY COPYRIGHT 2010 ACS on STM
 IN 3-Furanmethoxycarbonyl acid, 2,3'-[15-[12-[2-[4-[12-[13,5-bis(2-furanmethoxycarbonyloxy)benzoyloxy]ethoxy]ethoxy]phenyl]ethoxy]-5-[2-[4-cyano-5-(diarynamino)ethylene]-2,5-dihydro-2-methyl-2-(1H-furan-2-yl)-2-furylidene]-2-thienyl]methoxycarbonyl]-3,3-phenylene ester
 MF C63 H61 F2 N4 O12 S



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140 471 ANHMER5 REGISTRY COPYRIGHT 2010 ACS on STM (Continued)

10560670.trn

=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

L1 STRUCTURE UPLOADED
L2 0 S L1
L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010

L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010

L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010

L6 172 SEA L5
L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010

L8 0 S OTOPHORE
L9 1 S OPTOPHORE
L10 0 S L3 AND L9
L11 12 S L4 OR L9
L12 26 S ELECTRO-OPTIC CHROMOPHORES

10560670.trn

L29 FILE 'CAPLUS' ENTERED AT 15:18:50 ON 07 JUN 2010
L30 90 S L27
13 S L28

L31 FILE 'REGISTRY' ENTERED AT 15:19:23 ON 07 JUN 2010
1 S L27 AND HYDROXYETHYL

L32 FILE 'CAPLUS' ENTERED AT 15:20:35 ON 07 JUN 2010
L33 6 S L31
L34 19 S L32 OR L30
L35 4286 S MEROCYANINE
L36 91 S L34 AND REVIEW/DT
L37 0 S L35 AND FURNA
L38 0 S L35 AND FURAN
9 S L34 AND FURAN

FILE 'STNGUIDE' ENTERED AT 15:43:31 ON 07 JUN 2010

L39 FILE 'REGISTRY' ENTERED AT 16:06:27 ON 07 JUN 2010
L40 STRUCTURE UPLOADED
L41 50 S L39
L42 947 S L39 FULL
54 S L41 AND C5N/RF

L43 FILE 'CAPLUS' ENTERED AT 16:09:52 ON 07 JUN 2010
20 S L42

10560670.trn

L56	23 S SUB=L41 SAM L55
L57	23 S SAM L53 SUB=L41
L58	471 S FULL L53 SUB=L41
L59	424 S L58 NOT L42
L60	471 S L58 NOT 45

=> s 160 and ed<=2004
78285588 ED<=2004
(ED<=20049999)

L61 132 L60 AND ED<=2004

=> d scan 1-
'1-' IS NOT A VALID FORMAT FOR FILE 'REGISTRY'

10560670.trn

L41 112 ANUNRES E81RTTY C0P1R1GHT 2010 ACS on STM
 IN Propargedinitrile, 2-[3-cyano-4-[2-[5-[2-[4-[ethyl(6-hydroxyphenyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(1H)-furan-3-ylidene]-

MF C12 H14 N4 O2 S



PROPERTY DATA AVAILABLE IN THE 'PROD' FORMAT

The following are valid formats:

Substance information can be displayed by requesting individual fields as predefined formats. The predefined substance formats are: (BN - CAS Registry Number)

REG - BN
 SAN - Index Name, MF, and structure - no BN
 FINE - All substance data, except sequence data
 JDE - FINE, but only 50 names
 SQIDE - IDE, plus sequence data
 SQIDE1 - Same as SQIDE, but 3-letter amino acid codes are used
 SQD - Protein sequence data, includes BN
 SQD1 - Same as SQD, but 3-letter amino acid codes are used
 SQI - Protein sequence name information, includes BN
 E2PCP - Table of experimental properties
 P2PCP - Table of predefined properties
 P2COP - E2PCP, ITAG, P2PCP

Any CA File format may be combined with any substance format to obtain CA references citing the substance. The substance formats must be cited first. The CA File predefined formats are:

A2S -- Abstract
 APIS -- Application and Priority Information
 E1S -- CA Accession Number, plus bibliographic Data
 CAN -- CA Accession Number
 C1S -- CA Accession Number, plus bibliographic Data (compressed)
 IND -- Index Data
 IPC -- International Patent Classification
 PATS -- FI, SO

L41 112 ANUNRES E81RTTY C0P1R1GHT 2010 ACS on STM (Continued)
 STD -- RIR, IPC, and NCL

IARS -- A2S, indented, with text labels
 IRIR -- RIR, indented, with text labels
 ISTD -- STD format, indented

ORIR ----- ARI, plus bibliographic Data (original)
 ORIR1 ----- ORIR, indented with text labels

SRIR ----- RIR, no citations
 SRIR1 ----- IRIR, no citations

The ALL format gives FINE RIR A2S IND RE, plus sequence data when it is available.

The MAX format is the same as ALL plus SPEC.

The JALL format is the same as ALL with E1S A2S and IND indented, with text labels.

For additional information, please consult the following help messages:

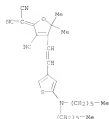
HELP DFIELDS -- To see a complete list of individual display fields.
 HELP FORMATS -- To see detailed descriptions of the predefined formats.
 HOW MANY MORE ANUMERS DO YOU WANT TO SCANT (!)end

10560670.trn

=> d scan

10560670.trn

L61 132 ANHEMBS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propenadinitrile,
 2-[3-cyano-4-[2-[3-(diisopropylamino)-3-thienyl]ethenyl]-5,5-
 dimethyl-2[5n]-furyrlydene]-
 MF C28 H36 N4 O S

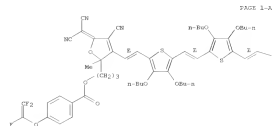


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):2000

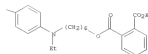
L61 132 ANHEMBS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Phenol, 4-ethenyl-, homopolymer, 6-[4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[
 [7,4-dibutoxy-5-[(1E)-2-[4-cyano-5-(diisopropylidene)-2,5-dihydro-2-methyl-
 2-[3-[4-[[trifluoroethenyl]oxy]benzoyl]oxy]propyl]-3-furanyl]ethenyl]-2-
 thienyl]ethenyl]-2-thienyl]ethenyl]phenyl]ethylenedimethyl
 1,2-benzenedisulfonylate 4-[[trifluoroethenyl]oxy]benzoate (SC1)
 MF C78 H61 F3 N4 O12 S2 . x C9 H5 F3 O3 . x (C6 H5 O)2

CH 1
 Double bond geometry as shown.



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PAGE 2-B



CH 2

L61 132 ANHEMBS REGISTRY COPYRIGHT 2010 ACS on STM (Continued)



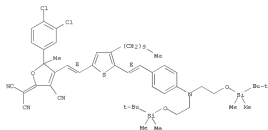
CH 3

CH 4



L61 132 ANHEMBS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propenadinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-bis[2-[[[1,1-
 dimethylethyl]dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-4-decyl-2-
 thienyl]ethenyl]-3-cyano-5-[2,4-dichlorophenyl]-5-methyl-2[5n]-
 furyrlydene]-
 MF C85 H74 Cl2 N4 O3 S S12

Double bond geometry as shown.

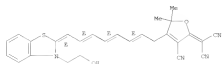


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

141 132 ANHMER REGISTRY COPYRIGHT 2010 ACS on STM
 2H Propenedinitrile,
 2-[3-cyano-4-[(1E,4E,6E)-8-[3-(2-hydroxyethyl)-2(3E)-
 heptachloro-1,2,4,6-tetraene-1-yl]-5,5-dimethyl-2(5E)-
 furanylidene]-
 MF C27 H44 H4 C8 8

Double bond geometry as shown.

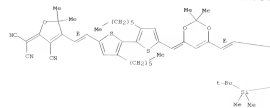


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

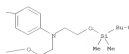
141 132 ANHMER REGISTRY COPYRIGHT 2010 ACS on STM
 2H Propenedinitrile, 2-[4-[(1E)-2-[5'-[[6-[(1E)-2-[4-[bis[2-[(1,1-
 dimethyl ethylidene) hexyl]oxy]ethyl]amino]phenyl]ethyl]-2,2-dimethyl-
 4E-1,3-dioxane-4-ylidene]ethyl]-7,7'-diheptyl[2,2'-bithiophene]-2-
 yl]ethyl]-3-cyano-5,5-dimethyl-2(5E)-furanylidene]-
 MF C63 H88 H4 C8 H2 H12 2

Double bond geometry as described by E or Z.

PAGE 1-A



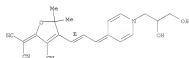
PAGE 1-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

141 132 ANHMER REGISTRY COPYRIGHT 2010 ACS on STM
 2H Propenedinitrile, 2-[3-cyano-4-[(1E)-3-[2-(3-dihydroxypropyl)-4(1H)-
 pyridinylidene]-1-propen-1-yl]-5,5-dimethyl-2(5E)-furanylidene]-
 MF C41 H50 H4 C8 3

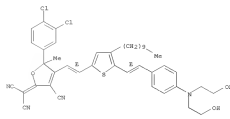
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

141 132 ANHMER REGISTRY COPYRIGHT 2010 ACS on STM
 2H bicyclo[2.2.1]hept-5-ene-2,3-dicarboxyl dichloride,
 1,4,5,6,7,7-hexachloro-, polymer with
 [4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethyl]-4-oxy-
 2-chloro]ethyl]-3-cyano-2-[(1,4-dichlorophenyl)-8-methyl-2(5E)-
 furanylidene]propenenitrile and 2,3,5,6-tetrachloro-1,4-
 benzenedimethanol (PC1)
 MF C43 H46 Cl2 H4 C3 8 . C9 H2 Cl8 O2 . C8 H6 Cl4 O2)M
 CI PMS

CH 1
 Double bond geometry as shown.



CH 2



CH 3



10560670.trn

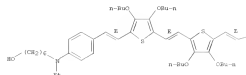
161 132 ANHEMIS REGISTRY COPYRIGHT 2010 ACS on STM (Continued)

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

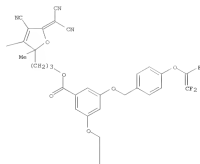
161 132 ANHEMIS REGISTRY COPYRIGHT 2010 ACS on STM
IN Benzoic acid, 3,5-bis[4-[(1,2,2-trifluoroethoxy)oxy]phenyl]methoxy]-,
3-[4-cyano-5-[(1E)-2-[1,4-dibutoxy-5-[(1E)-2-[5,4-dibutoxy-5-[(1E)-2-[4-
[ethyl(6-hydroxyphenylamino)phenyl]ethenyl]-2-ethoxy]ethenyl]-2-
thienyl]ethenyl]-5-(diphenylethylene)-2,5-dihydro-2-methyl-2-
furanyl]propyl ester
MF C81 H88 F6 H4 O12 S2

Double bond geometry as shown.

PAGE 1-A



PAGE 1-B



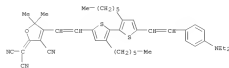
161 132 ANHEMIS REGISTRY COPYRIGHT 2010 ACS on STM (Continued)

PAGE 2-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

161 132 ANHEMIS REGISTRY COPYRIGHT 2010 ACS on STM
IN Propanedinitrile,
2-[3-cyano-4-[[2'-[5'-[2'-[4-(diethylamino)phenyl]ethenyl]-
3,3'-diethyl[2,2'-bithiophen]-5-yl]ethenyl]-4,5-dimethyl-2(1H)-
furanylidene]-
MF C44 H52 N4 O S2

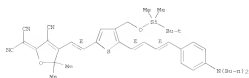


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

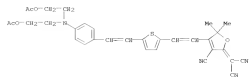
L41 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propenedinitrile, 2-[3-cyano-4-[(1E)-2-[5-[(1E,2E)-6-[4-(diethylamino)phenyl]-3,3-butadien-1-yl]-4-[[[1,1-dimethylethyl]dimethylsilyloxy]methyl]-2-thienyl]ethenyl]-2-(1E)-furylidene]-
 MF C41 H52 N4 O2 S H5

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

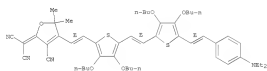
L41 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propenedinitrile, 2-[4-[2-[5-[2-[4-[bis[2-(acetyloxy)ethyl]amino]phenyl]ethenyl]-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2-(1E)-furylidene]-
 MF C52 H50 N4 O5 S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

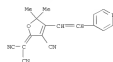
L41 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propenedinitrile, 2-[3-cyano-4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-3,5-dimethyl-2-(1E)-furylidene]-
 MF C50 H62 N4 O3 S2

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L41 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propenedinitrile, 2-[3-cyano-5,5-dimethyl-4-[2-(4-pyridinyl)ethenyl]-2-(1E)-furylidene]-
 MF C17 H12 N4 O

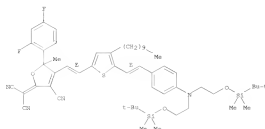


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L41 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propenedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis[2-[(1,1-dimethylethyl)dimethylallyloxy]ethylamino]phenylethoxy]-4-decyl-2-thienyl]ethenyl]-2-cyano-5-[2,4-difluorophenyl]-5-methyl-2(5H)-furan]idene]-
 MF C51 H74 F2 N4 O2 S H12

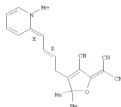
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L41 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propenedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E,4E)-4-[(1-methyl-2(1H)-pyridinylidene)-2-buten-1-yl]-2(5H)-furan]idene]-
 MF C20 H18 N4 O

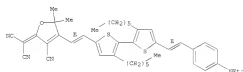
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L41 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propenedinitrile, 2-[3-cyano-4-[(1E)-2-[5'-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]-3,3'-dihexyl[2,2'-bithiophen]-5-yl]ethenyl]-5,5-dimethyl-2(5H)-furan]idene]-
 MF C54 H82 N4 O S2

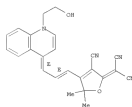
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L41 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propenedinitrile, 2-[3-cyano-4-[(1E,5E)-5-[1-[(1-hydroxyethyl)-4(1E)-quinolylidene]-3-propen-3-yl]-5,5-dimethyl-2(5H)-furan]idene]-
 MF C34 H30 N4 O2

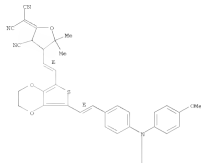
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

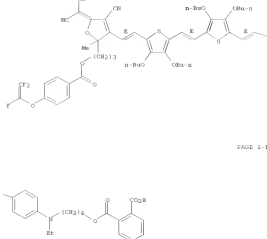
10560670.trn

L41 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
IN Propanedinitrile, 2-[4-[(1E)-2-[7-[(1E)-2-[4-[bis(4-methoxyphenyl)amino]phenyl]ethenyl]-2,3-dihydrothieno[3,4-b]-1,4-dioxin-5-yl]ethenyl]-3-cyano-5,5-dimethyl-2(3H)-furanlidene]-
MF C40 H34 N4 O5 S
Double bond geometry as shown.



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L43 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
IN 1,2-Benzenedicarboxylic acid, 1-[6-[(4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[7,4-dibutoxy-5-[(1E)-2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2-methyl-2-[3-[[4-[[1,2,2-trifluoroethoxy]benzoyloxy]propyl]-3-furyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]ethylanamyl]ester
MF C79 H63 F3 N4 O12 S2
CI OM
Double bond geometry as shown.



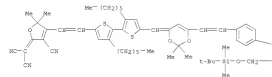
PAGE 1-A

PAGE 1-B

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

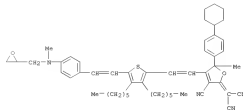
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
IN Propanedinitrile, 2-[4-[2-[[5'-[[5-[[2-[4-[bis(2-[[1,1,1-dimethyl-2-methyl-1-ethoxy]ethyl]amino]phenyl]ethenyl]-2,2-dimethyl-4,4,1,3-dioxane-4-ylidene]methyl]-3,3'-diheptyl[2,2'-bithiophen]-5-yl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlidene]-
MF C67 H88 N4 O5 S2 S2

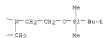


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L63 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
IN Propanedinitrile, 2-[3-cyano-5-(4-cyclohexenylphenyl)-4-[2-[3,4-dihexyl-5-[[2-[4-[[methyl(4-oxidiazolylmethyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5-methyl-2(5H)-furanlidene]-
MF C73 H82 N4 O2 S



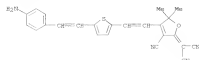
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

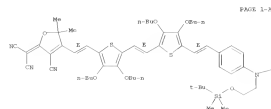
L61 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on SYN
 IN Propenedinitrile,
 2-[4-[2-[5-[2-[4-anilino]phenyl]ethynyl]-2-thienyl]ethynyl]-
 3-cyano-5,5-dimethyl-2-[5H]-furyr[1,2-d]
 MF C24 H29 N4 O S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on SYN
 IN Propenedinitrile, 2-[4-[2-[5-[2-[5-[1,2,3-trifluoromethyl]phenyl]ethynyl]-2-thienyl]ethynyl]-3,4-dimethoxy-2-thienyl]ethynyl]-3,4-dimethoxy-2-thienyl]ethynyl]-3-cyano-5,5-dimethyl-2-[5H]-furyr[1,2-d]
 MF C62 H90 N4 O7 S2 F6

Double bond geometry as shown.



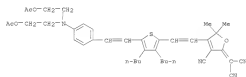
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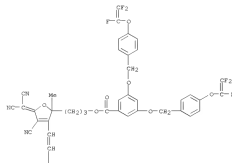
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on SYN
 IN Propenedinitrile, 2-[4-[2-[5-[2-[4-[4a]-[acetonyl]ethyl]amino]phenyl]ethynyl]-3,4-dimethyl-2-thienyl]ethynyl]-3-cyano-5,5-dimethyl-2-[5H]-furyr[1,2-d]
 MF C40 H44 N4 O S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

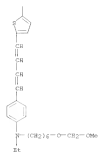
L61 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on SYN
 IN Benzoic acid, 3,5-bis[[4-[[1,2,3-trifluoromethyl]phenyl]methoxy]-, 3-[4-cyano-5-(dicyanomethylene)-3-[2-[5-[4-[4-ethyl]6-(methoxymethyl)heptyl]amino]phenyl]-1,3-butadien-1-yl]-2-thienyl]ethynyl]-2,5-dihydro-3-methyl-2-furyr[1,2-d]
 MF C63 H59 F6 H4 O9 S



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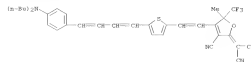
10560670.trn

141 131 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM (Continued)
PAGE 2--A



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

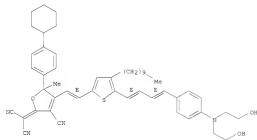
141 131 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN Propandinitrile, 2-[3-cyano-4-[2-[5-[4-[4-(diethylamino)phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-5-methyl-5-(trifluoromethyl)-2(1H)-furan-2-ylidene]-
MF C34 H33 F3 N4 O S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

141 131 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN Propandinitrile, 2-[4-[(1E)-2-[5-[(1E,3E)-4-[4-[bis(2-hydroxyethyl)amino]phenyl]-1,3-butadien-1-yl]-4-decyl-2-thienyl]ethenyl]-3-cyano-5-[4-cyclohexylphenyl]-5-methyl-2(1H)-furan-2-ylidene]-
MF C51 H50 N4 O5 S

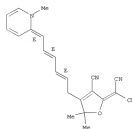
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

141 131 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
IN Propandinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E,4E,6E)-6-[3-methyl-2(1H)-pyridin-2-ylidene]-2,4-hexadien-1-yl]-2(1H)-furan-2-ylidene]-
MF C22 H20 N4 O

Double bond geometry as shown.



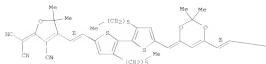
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L61 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5'-[[6-[(1E)-2-[4-(diisopropylamino)phenyl]ethenyl]-2,2-dimethyl-4H-1,3-dioxin-4-ylidene]methyl]-3,3'-dibenzyl]-2,2'-bithiophen]-5-yl]ethenyl]-5,5-dimethyl-2(5H)-furylidene]-
MF C55 H68 N4 O3 S2

Double bond geometry as described by E or Z.

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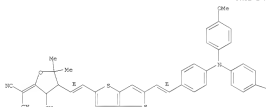


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
IN Propanedinitrile, 2-[4-[(1E)-2-[5'-[[1E)-2-[4-[bis(4-methoxyphenyl)amino]phenyl]ethenyl]thiemo[3,2-b]thien-2-yl]ethenyl]-3-cyanoethylidene]-5,5-dimethyl-2(5H)-furylidene]-
MF C40 H32 N4 O3 S2

Double bond geometry as shown.

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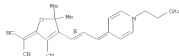


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PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

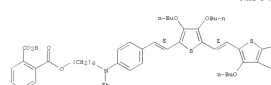
L63 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
IN Propanedinitrile, 2-[4-[(1E)-3-[1-[2-[acetylacetyl]ethenyl]-4(1E)-pyridinylidene]-1-propen-1-yl]-3-cyano-5,5-dimethyl-2(5H)-furylidene]-
MF C52 H60 N4 O3
Double bond geometry as shown.



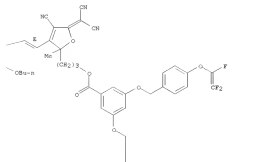
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
IN 1,2-Benzenedithiobenzoic acid, 3-[6-[[4-[(1E)-2-[5'-[[1E)-2-[5'-[[1E)-2-[2-[3-[[1,5-bis[[4-[[1,2,2-trifluoroethenyl]oxy]phenyl]methoxy]benzoyl]oxy]propyl]-4-cyano-5-(diisopropylamino)-2,5-dihydro-2-methyl-3-furyl]ethenyl]-7,4-dibutoxy-2-thienyl]ethenyl]-7,4-dibutoxy-2-thienyl]ethenyl]phenyl]ethylamino]heptyl] ester
MF C89 H92 F6 N4 O15 S2
CI COH
Double bond geometry as shown.

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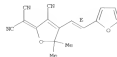
10560670.trn

161 131 ANDREWS REGISTRY COPYRIGHT 2010 ACS on STM (Continued)
 IN
 MF C16 H11 N1 O2
 PAGE 2-5



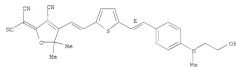
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

161 131 ANDREWS REGISTRY COPYRIGHT 2010 ACS on STM
 IN
 MF C16 H11 N1 O2
 Double bond geometry as shown.



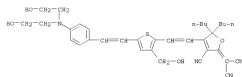
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

161 131 ANDREWS REGISTRY COPYRIGHT 2010 ACS on STM
 IN
 MF C27 H24 N4 O2 S
 Double bond geometry as described by E or S.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

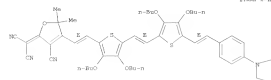
161 131 ANDREWS REGISTRY COPYRIGHT 2010 ACS on STM
 IN
 MF C35 H40 N4 O4 S
 Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L61 132 ANWHEER REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitraze, 2-[4-[(1E)-2-[5-[(1E)-2-[5-[(1E)-2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-2,4-dinitroxy-2-thienyl]ethenyl]-2,4-dinitroxy-2-thienyl]ethenyl]-2-cyano-3,5-dimethyl-2-thiophenylidene]-5,5-dimethyl-2-thienylidene]-2-cyano-3,5-dimethyl-2-thiophenylidene]
 MF C50 H62 N4 O7 S2
 Double bond geometry as shown.



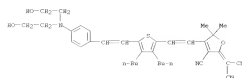
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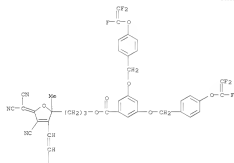
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANWHEER REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitraze, 2-[4-[2-[5-[2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-2,4-dinitroxy-2-thienyl]ethenyl]-2-cyano-3,5-dimethyl-2-thiophenylidene]-5,5-dimethyl-2-thienylidene]-2-cyano-3,5-dimethyl-2-thiophenylidene]
 MF C50 H62 N4 O7 S2
 CM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

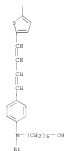
L61 132 ANWHEER REGISTRY COPYRIGHT 2010 ACS on STM
 IN Benzoic acid, 3,5-bis[[4-[(1E)-2-[5-[(1E)-2-[5-[(1E)-2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-2,4-dinitroxy-2-thienyl]ethenyl]-2,4-dinitroxy-2-thienyl]ethenyl]-2-cyano-3,5-dimethyl-2-thiophenylidene]-5,5-dimethyl-2-thiophenylidene]-2-cyano-3,5-dimethyl-2-thiophenylidene]-2-cyano-3,5-dimethyl-2-thiophenylidene]
 MF C62 H54 F6 N4 O6 S2



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L61 132 ANWHEER REGISTRY COPYRIGHT 2010 ACS on STM (Continued)

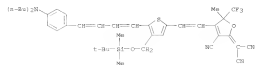
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT



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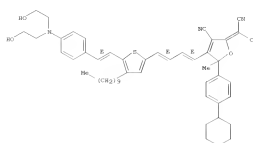
10560670.trn

L61 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propenedinitrile, 2-[3-cyano-4-[2-[5-[4-[4-(diethylamino)phenyl]-1,3-butadien-1-yl]-4-[[[1,1-dimethylethyl]dimethylsilyloxy)methyl]-2-thienyl]ethenyl]-5-methyl-3-trifluoromethyl-2(5H)-furylidene]-
 MF C41 H49 F3 N4 O2 S Si
 Double bond geometry as shown.



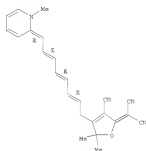
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propenedinitrile, 2-[4-[[3E,7E]-4-[5-[[3E]-2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-4-decyl-2-thienyl]-3,3-butadien-1-yl]-3-cyano-5-[4-cyclohexenylphenyl]-5-methyl-2(5H)-furylidene]-
 MF C53 H60 N4 O3 S
 Double bond geometry as shown.



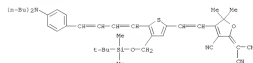
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propenedinitrile, 2-[3-cyano-5,5-dimethyl-4-[[[2E,4E,6E,8E]-8-[1-methyl-2(1H)-pyridinylidene]-2,4,6-octatrien-1-yl]-2(5H)-furylidene]-
 MF C34 H32 N4 O
 Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propenedinitrile, 2-[3-cyano-4-[2-[5-[4-[4-(diethylamino)phenyl]-1,3-butadien-1-yl]-4-[[[1,1-dimethylethyl]dimethylsilyloxy)methyl]-2-thienyl]ethenyl]-5,5-dimethyl-3(5H)-furylidene]-
 MF C41 H52 N4 O2 S Si
 Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

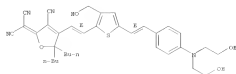
10560670.trn

161 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1R,2R)-5-(1-methyl-4[(1R)-
 pyridinylidene)-2,3-pentadien-1-yl]-2(5H)-furanlidene]-
 MF C25 H29 N6 O
 Double bond geometry as shown.



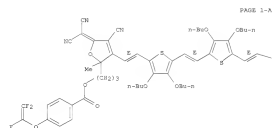
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

161 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[4-[(1R)-2-[5-[(1R)-2-[4-[hex-2-
 hydroxyethyl]amino]phenyl]ethenyl]-2-(hydroxymethyl)-2-thienyl]ethenyl]-
 5,5-dibutyl-3-cyano-2(3H)-furanlidene]
 MF C35 H40 N4 O4 S
 Double bond geometry as shown.



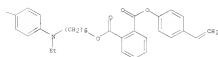
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

161 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN 1,5-Dimercaptoisobutylic acid, 1-[6-[[4-[(1S)-2-[3,4-dibutoxy-5-[(1S)-2-
 [3,4-dibutoxy-5-[(1S)-2-[4-cyano-5-(dicyanometylene)-2,5-dihydro-2-methyl-
 2-[3-[[4-[(1,2,2-trifluoroethenyl)oxy]benzoyloxy]propyl]-3-
 furanyl]ethenyl]-2-thienyl]ethenyl]-2-
 thienyl]ethenyl]phenyl]ethylamino]hexyl]-2-(4-ethenylphenyl) ester
 MF C51 H67 F3 N4 O5 S2
 CI OOH
 Double bond geometry as shown.



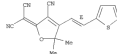
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PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

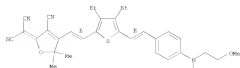
161 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E)-2-(2-thienyl)ethenyl]-
 2(5H)-furanlidene)-
 MF C16 H11 N3 O S
 Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

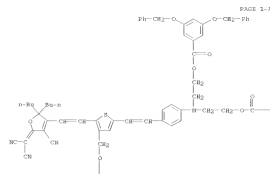
10560670.trn

L61 132 ANHESS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile,
2-[3-cyano-4-[(1E)-2-[3,4-diethyl-5-[(1E)-2-[4-ethyl-2-
methoxyethyl-1-thiophenyl]ethoxy]-2-thienyl]ethoxy]-5,5-dimethyl-2(1H)-
furyl]idene]-
MF C23 H26 N4 O2 S
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L63 132 ANHESS REGISTRY COPYRIGHT 2010 ACS on STN
IN Benzoic acid, 5,5-bis[phenylmethyl]-,
[[4-[2-[4-[[[13,5-bis[phenylmethyl]benzoyl]oxy]methyl]-5-[2-[2,2-dibutyl-4-
cyano-5-(diacyanethyl)ene]-2,5-dihydro-3-furanyl]ethoxy]-2-
thienyl]ethoxy]phenyl]amino]di-2,1-ethanediyl ester (PC1)
MF C58 H88 N4 O13 S
Double bond geometry as shown.

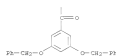


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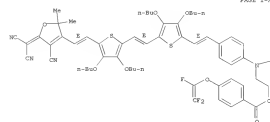


L61 132 ANHESS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)
PAGE 2-A



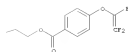
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANHESS REGISTRY COPYRIGHT 2010 ACS on STN
IN Benzoic acid, 4-[[1-ethyl-2-methyl-5-oxo-5-
[[4-[[1E)-2-[3,4-dimethoxy-5-[[1E)-2-[3,4-dimethoxy-5-[[1E)-2-[4-cyano-5-
diacyanethyl]ene]-2,5-dihydro-3-furanyl]ethoxy]-2-thienyl]ethoxy]-2-thienyl]ethoxy]phenyl]amino]di-2,1-ethanediyl ester (PC1)
MF C68 H88 F4 N4 O11 S2
Double bond geometry as shown.



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PAGE 1-B

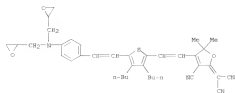


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

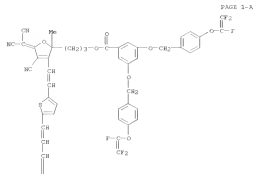
L41 132 ANHEMERS REGISTRY COPYRIGHT 2010 ACS on STM
IN Propanedinitrile, 2-[4-[2-[5-[2-[4-[bis(2-oxiranylmethylamino)phenyl]ethenyl]-3-cyano-5-hydroxyl]-2-[3a-furanylidene]-

MF C38 H42 N4 O3 S



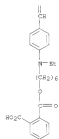
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L43 132 ANHEMERS REGISTRY COPYRIGHT 2010 ACS on STM
IN 1,2-Benzenedicarboxylic acid, 1-[6-[14-[4-[5-[12-[13-[13,5-bis[4-[1,1,2,2-trifluoroethoxymethoxy]phenyl]but-2-ynyl]ethenyl]-1,3-bis[4-(2-oxo-2-methyl-3-furanyl]ethenyl]-2-thienyl]-1,3-bis[4-(2-oxo-2-methyl-3-furanyl]ethenyl]-2-thienyl]ethenyl] ester
MF C59 H58 F6 N4 O11 S
CI COM



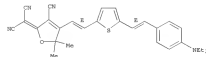
PAGE 3-A

L41 132 ANHEMERS REGISTRY COPYRIGHT 2010 ACS on STM (Continued)
PAGE 2-A



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

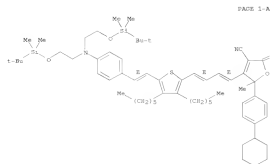
L43 132 ANHEMERS REGISTRY COPYRIGHT 2010 ACS on STM
IN Propanedinitrile, 2-[3-oxo-4-[1,1,2,2-tetrafluoro-5-[4-(2-oxo-2-methyl-3-furanyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2-(5H-furanylidene)-
MF C28 H26 N4 O S
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

161 132 ANHMERZ REISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[(4-[(1E,1E)-4-[(5-[(1E)-2-[(4-[(Bu[2-[(1,1-dimethylethyl)dimethylsilyl]oxy[ethyl]amino]phenyl]ethenyl)-3,4-dihexyl-2-thienyl]-1,3-butadien-1-yl]-3-cyano-5-(4-cyclohexylphenyl)-5-methyl-2(SH)-furan-2-ylidene)-furan-2-ylidene]-
 MF C55 H52 N4 O5 S S2
 Double bond geometry as shown.

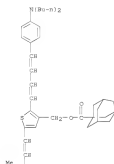


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PROPERTY DATA AVAILABLE IN THE 'PBCP' FORMAT

161 132 ANHMERZ REISTRY COPYRIGHT 2010 ACS on STM
 IN Tri-cyclo[3.3.1.3^{1,2}]decane-1-carboxylic acid, [5-[(2-[(4-cyano-5-(dipropylmethylene)-2,5-dihydro-2H-dimethyl-3-furanyl]ethenyl)-2-[(4-[(4-dimethylamino)phenyl]-1,3-butadien-1-yl]-3-thienyl]methyl ether
 MF C46 H52 N4 O5 S
 Double bond geometry as shown.

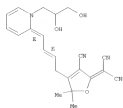


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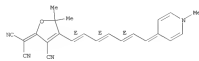
PROPERTY DATA AVAILABLE IN THE 'PBCP' FORMAT

161 132 ANHMERZ REISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[(3-cyano-4-[(1E,4E)-4-[(1-[(2,3-dihydroxypropyl)-2(1H)-pyridin-2-ylidene)-2-buten-1-yl]-5,5-dimethyl-2(SH)-furan-2-ylidene)-furan-2-ylidene]-
 MF C52 H52 N4 O3
 Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PBCP' FORMAT

161 132 ANHMERZ REISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[(3-cyano-5,5-dimethyl-4-[(1E,3E,5E)-5-(1-methyl-4(1E)-pyridin-2-ylidene)-1,3,5-heptatrien-3-yl]-2(SH)-furan-2-ylidene)-furan-2-ylidene]-
 MF C53 H52 N4 O
 Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PBCP' FORMAT

L41 132 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM

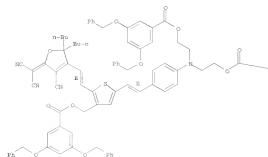
TH Benzoic acid, 2,5-bis(phenylmethoxy)-,

[[4-[(1E)-2-[4-[[[2,5-bis(phenylmethoxy)benzoyl]oxymethyl]-5-[(1E)-2-[2,2-dibutyl-4-cyano-5-(dicyanomethylene)-2,5-dihydro-3-furyl]ethenyl]-2-(3-oxo-1-phenyl-1-phenyl)vinyl]amino]n]-2,1-ethenediyl] ester (PCL)

MF C58 H58 N4 O13 S

Double bond geometry as shown.

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L41 132 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM

TH 2-[2-benzene-6-ethoxy-5-[[4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-

dibutoxy-5-[(1E)-2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-3-methyl-2-[3-[4-[(trifluoroethoxy)oxy]benzoyl]oxy]propyl]-3-furyl]ethenyl]-2-(3-oxo-1-phenyl-1-phenyl)vinyl]amino]n]-2,1-ethenediyl] ester, polymer with 4-ethenylphenyl 4-[(trifluoroethoxy)oxy]benzoate

(PCL)

MF C53 H57 F3 N4 O12 S2 . C17 H11 F3 O3)x

CI

PDB

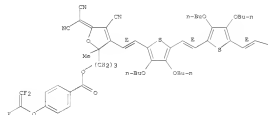
CH 1



CH 2

Double bond geometry as shown.

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L41 132 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM

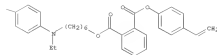
(Continued)

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L41 132 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM

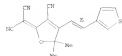
(Continued)

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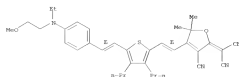
10560670.trn

L61 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1R)-2-(3-thienyl)ethenyl]-
 2(1R)-furanlidene]-
 MF C15 H11 N3 O 5
 Double bond geometry as shown.



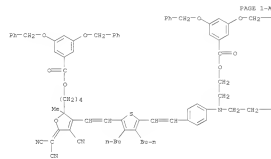
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L63 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[3-cyano-4-[(1R)-2-[5-[(1R)-2-[4-ethoxy(2-
 methoxyethyl)amino]phenyl]ethenyl]-5,4-dipropyl-2-thienyl]ethenyl]-5,5-
 dimethyl-2(1R)-furanlidene]-
 MF C35 H40 N4 O 5
 Double bond geometry as shown.



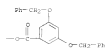
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Benzoic acid, 3,5-bis(phenylmethoxy)-
 [4-[[2-[5-[[2-[2-[4-[[[3,5-bis(phenylmethoxy)benzoyl]oxy]butyl]-4-cyano-5-
 (dipropenyl)amino]-2,5-dihydro-3-methyl-3-furanyl]ethenyl]-3,4-dimethyl-2-
 thienyl]ethenyl]phenoxy]imino]di-2,2-ethanediy] ester (PCL)
 MF C62 H56 N4 O 5
 PAGE 1-A



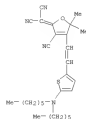
— Ph

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PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

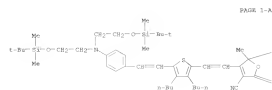
L63 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile,
 2-[3-cyano-4-[[2-[5-[[2-[5-(dihexylamino)-2-thienyl]ethenyl]-5,5-
 dimethyl-2(1R)-furanlidene]-
 MF C28 H36 N4 O 5
 PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L61 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[(4-[2-[5-[2-[4-[bis[2-[[[1,1-dimethylethyl]dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5-(4-hydroxyethyl)-5-methyl-2(5H)-furan]idene)-5,5-dimethyl-2(5H)-furan]idene]-
 MF C34 H36 N4 O4 S Si2
 CT COH

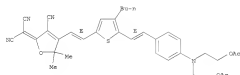


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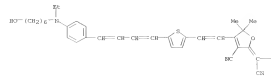
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[(4-[1(1E)-2-[5-[[1(1E)-2-[4-[bis[2-(acetyl)ethyl]amino]phenyl]ethenyl]-4-butyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furan]idene)-5,5-dimethyl-2(5H)-furan]idene]-
 MF C34 H36 N4 O3 S
 Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[3-cyano-4-[2-[5-[4-[4-[ethyl(6-hydroxyhexyl)amino]phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furan]idene]-
 MF C34 H36 N4 O2 S

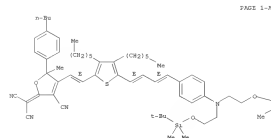


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PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[4-[[1(1E)-2-[5-[[1(1E,3E)-4-[4-[bis[2-[[[1,1-dimethylethyl]dimethylsilyl]oxy]ethyl]amino]phenyl]-1,3-butadien-1-yl]-3,4-dihexyl-2-thienyl]ethenyl]-5-(4-butylphenyl)-3-cyano-5-methyl-2(5H)-furan]idene)-5,5-dimethyl-2(5H)-furan]idene]-
 MF C63 H90 N4 O3 S Si2
 Double bond geometry as shown.



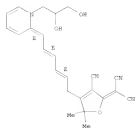
PAGE 1-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

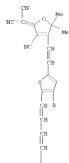
10560670.trn

L41 132 ANHEMIS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[3-cyano-4-[(1E,4E)-6-[1-(2,3-dihydroxypropyl)-
 2(1E)-pyridinylidene]-2,4-heptadien-1-yl]-5,5-dimethyl-2(5E)-furanlylidene]-
 MF C14 H24 N4 O3
 Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L41 132 ANHEMIS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Benzoic acid, 2,5-bis[(2-methylhexyl)oxy]-,
 [5-[2-[4-cyano-5-(dicyanomethylidene)-2,5-dihydro-2,2-dimethyl-5-
 furanyl]ethoxy]-2-[4-[(4-(dibutylamino)phenyl]-3,5-bisaden-1-yl]-2-
 thienyl]ethyl ester
 MF C58 H74 N4 O5 2
 Double bond geometry as shown.

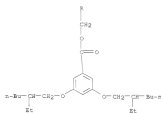


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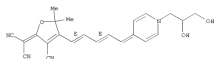
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L41 132 ANHEMIS REGISTRY COPYRIGHT 2010 ACS on STM (Continued)
 PAGE 3-A



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

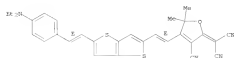
L41 132 ANHEMIS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[3-cyano-4-[(1E,2E)-5-[1-(2,3-dihydroxypropyl)-4(1E)-
 pyridinylidene)-1,3-pentadien-1-yl]-5,5-dimethyl-2(5E)-furanlylidene]-
 MF C18 H22 N4 O3
 Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L41 132 ANHEMRS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-4-[(1R)-2-[5-[(1R)-2-[4-
 (diethylamino)phenyl]ethenyl]thieno[3,2-b]thian-2-yl]ethenyl]-5,5-dimethyl-
 2[1H]-furylidene]-
 MF C10 H16 N4 O S2
 Double bond geometry as shown.

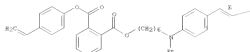


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

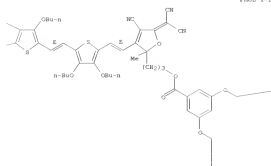
L43 132 ANHEMRS REGISTRY COPYRIGHT 2010 ACS on STN
 IN 1,2-Benzenedicarboxylic acid,
 1-[4-[(14-[(1R)-2-[5-[(1R)-2-[5-[(1R)-2-[2-[3-
 [(3,5-bis[4-[(1,2,2-trifluoroethyl)oxy]phenyl]methyl]benzoyl]oxy]propyl)-
 1]-4-cyano-5-(di(4-methylphenyl)-3,5-dihydro-2-methyl-3-furyl]ethenyl]-
 3,4-dibutoxy-2-thienyl]ethenyl]-3,4-dibutoxy-2-
 thienyl]ethenyl]phenyl]ethylanilino]benzyl] 2-(4-ethenylphenyl) ester
 MF C97 H99 F4 N4 O15 S2
 CI COH
 Double bond geometry as shown.

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n-BuO



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L41 132 ANHEMRS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

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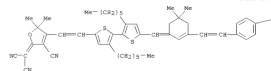
PAGE 2-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L43 132 ANHEMRS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propanedinitrile, 2-[3-cyano-4-[2-[5'-[(3-[2-[4-
 (dimethylamino)phenyl]ethenyl]-5,5-dimethyl-2-cyclohexen-1-ylidene]methyl]-
 3,3'-dibenzyl[2,2'-bithiophen-5-yl]ethenyl]-5,5-dimethyl-2(1H)-
 furanylidene]-
 MF C51 H60 N4 O S2

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-10Me2

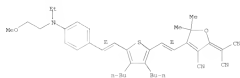
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L61 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Preparednitrile,
 2-[3-cyano-4-[(1E)-2-[3,4-dimethyl-5-[(1E)-2-[4-[ethyl(2-methoxyethyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(1H)-furylidene]-

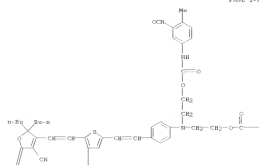
MF C27 H44 N4 O2 S

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L62 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Carbanic acid, [3-acyanato-4-methylphenyl]-,
 [[4-[2-[5-[2-[2,2-dimethyl-4-cyano-5-(diacyanomethylene)-2,5-dihydro-3-furyl]thienyl]-4-[[[3-acyanato-4-methylphenyl]amino]carbonyloxy[methyl]-2-thienyl]ethenyl]phenyl]imino]di-2,1-ethanediyl ester (9CI)
 MF C52 H58 N10 O10 S
 CI COM



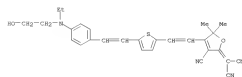
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L61 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM (Continued)

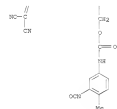
PAGE 1-B

L61 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Preparednitrile, 2-[3-cyano-4-[2-[5-[2-[4-ethyl(2-hydroxyethyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(1H)-furylidene]-

MF C28 H26 N4 O2 S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT



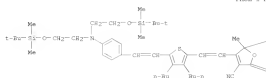
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PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L61 132 ANDREWS REGISTRY COPYRIGHT 2010 ACS on STM
 DI Propenedinitrile, [4-(2-[5-[2-(4-[bua[2-[[[1,1-dimethyl-2-thienylethyl]-3-cyano-5-(4-hydroxybutyl)-5-methyl-2(5H)-furylidene]-, polymer with 2,4-diacetato-3-methylbenzene and 2,2',4,4'-nitrotrifluorobenzene] (NCT)
 MF (C31 H76 N4 O4 S H42 . CF H6 N2 O2 . CG H15 N O3)x
 CI 192

CM 1



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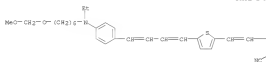
-(CH2)4-CH



CM 2

L61 132 ANDREWS REGISTRY COPYRIGHT 2010 ACS on STM
 DI Propenedinitrile, 2-[4-(2-[5-[2-[4-[bua[2-[[[1,1-dimethyl-2-thienylethyl]-3-cyano-5-(4-hydroxybutyl)-5-methyl-2(5H)-furylidene]-, polymer with 2,4-diacetato-3-methylbenzene and 2,2',4,4'-nitrotrifluorobenzene] (NCT)
 MF (C31 H76 N4 O4 S H42 . CF H6 N2 O2 . CG H15 N O3)x
 CI 192

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PAGE 1-B



L61 132 ANDREWS REGISTRY COPYRIGHT 2010 ACS on STM (Continued)

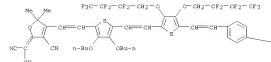


CM 3



L61 132 ANDREWS REGISTRY COPYRIGHT 2010 ACS on STM
 DI Propenedinitrile, 2-[4-(2-[5-[2-[4-[bua[2-[[[1,1-dimethyl-2-thienylethyl]-3-cyano-5-(4-hydroxybutyl)-5-methyl-2(5H)-furylidene]-, polymer with 2,4-diacetato-3-methylbenzene and 2,2',4,4'-nitrotrifluorobenzene] (NCT)
 MF (C31 H76 N4 O4 S H42 . CF H6 N2 O2 . CG H15 N O3)x
 CI 192

PAGE 1-A



PAGE 1-B

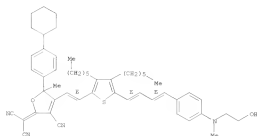


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

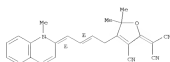
10560670.trn

L61 132 ANHMERB REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile,
 2-[3-cyano-5-(4-cyclohexylphenyl)-4-[(1E)-2-[3,4-dihydro-5-[(1E,1E)-4-[4-[(2-hydroxyethyl)methylamino]phenyl]-3,3-buten-1-yl]-2-thienyl]ethenyl]-5-methyl-2(5H)-furylidene]-
 MF C53 H62 N4 O3 S
 Double bond geometry as shown.



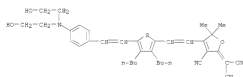
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANHMERB REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E,4E)-4-[(1-methyl-2(1H)-quinolinyldene)-2-buten-1-yl]-2(5H)-furylidene]-
 MF C54 H60 N4 O
 Double bond geometry as shown.

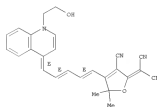


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANHMERB REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile,
 [4-(2-[1E]-[3-[14-(bis[2-hydroxyethylamino]phenyl)ethenyl]-3,4-dihydro-5-(thienyl)ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furylidene)-,
 homopolymer (N2)
 MF C56 H64 N4 O3 S
 CI PMS
 CH 3



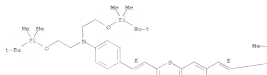
L61 132 ANHMERB REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[3-cyano-4-[(1E,5E,5E)-5-[1-[(2-hydroxyethyl)-4(1E)-quinolinyldene)-1,3-pentadien-1-yl]-5,5-dimethyl-2(5H)-furylidene]-
 MF C56 H62 N4 O
 Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

161 132 AMMERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis[2-[[[1,1-
dimethylethyl]dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]thieno[3,2-
b]thiaz-2-yl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanylidene]
MF C42 H54 N4 O3 S2 R12

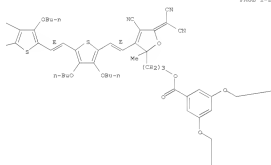


PAGE 1-2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

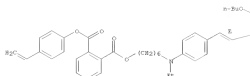
161 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)



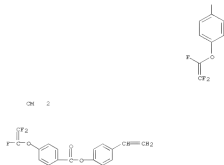
PAGE 1-C



LIN 132 ANGEHESSIGEN COPYRIGHT 2010 ACS ON STN
 1-2-Benzeneadipic acid, 6-[4-{[1E]-2-[5-{[1E]-2-[5-{[1E]-2-[2-[3-
 [1,3,5-tris(4-{(4-(trifluoromethyl)oxyphenyl)methoxycarbonylpropyl}-6-
 cyano-5-dicyanobenzyloxy)-2,5-dihydro-2-methyl-3-furanyl]ethenyl]-4,
 4-dibutoxy-2-thienyl]ethenyl]-3,4-dibutoxy-2-
 thienyl]ethenyl]phenyl]butyranolone; 4-ethenylphenyl ester, polymer
 of 4-ethenylphenyl 4-(trifluoromethyl)benzoate (PC1)
 CIP 898 P6 M6 015 22 , CIV B12 P3 03)x

 Ba^{2+}

161 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)



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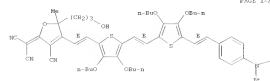
141 132 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-(2-(2-thienyl)ethyl)-2(1H)-
 furanylidene]-
 MF C14 H14 N2 O 3



PROPERTY DATA AVAILABLE IN THE 'PROF' FORMAT

141 132 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-(2-(2-thienyl)ethyl)-2(1H)-2-[3,4-dithiary-5-[[1E]-2-[3,4-dithiary-5-[[1E]-2-[4-[[1E]-1,1-dimethyl-2-thienylidene]ethynyl]ethynyl]ethynyl]ethynyl]-5-(3-hydroxypropyl)-5-methyl-2(1H)-furylidene]-
 MF C62 H88 N4 O7 S2 S4

Double bond geometry as shown.



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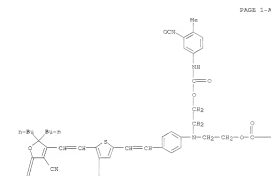
PAGE 1-B



PROPERTY DATA AVAILABLE IN THE 'PROF' FORMAT

141 132 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Gallic acid, [3-isocyanato-4-methylphenyl],
 [[4-[[2-[5-[[2-[2,3-dibutyl-4-cyano-5-(diisocyanomethylene)-2,5-dihydro-3-furanyl]ethynyl]-4-[[1[[1,3-isocyanato-4-
 methylphenylamino]carbamoyl]oxy]methyl]-2-thienyl]ethenyl]phenyl]imino]di-
 2,1-ethenediyl] ester, polymer with 2,4-diisocyanato-1-methylbenzene and
 2,2',3,3'-methyloltris(4-etheno)] (PCI)
 MF C62 H88 N10 O10 S . C9 H6 N2 O2 . C6 H15 N O3)x
 CI PMS
 CH 1

141 132 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM (Continued)
 PAGE 1-B



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CH 2

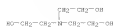


CH 3

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10560670.trn

161 132 ANMEERS REGISTRY COPYRIGHT 2010 ACS on STM (Continued)



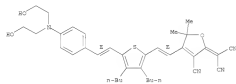
161 132 ANMEERS REGISTRY COPYRIGHT 2010 ACS on STM
IN Propanedinitrile, 2-[3-cyano-4-[[2-[5-[2-[4-[ethyl(6-hydroxyhexyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furan-2-ylidene]-furanylidene]-
MF C32 H34 N4 O2 S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

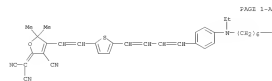
161 132 ANMEERS REGISTRY COPYRIGHT 2010 ACS on STM
IN Propanedinitrile, 2-[4-[[[(1E)-2-[5-[[[(1E)-2-[4-[Bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(1H)-furan-2-ylidene]-furanylidene]-
MF C39 H42 N4 O2 S
CI COM

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

161 132 ANMEERS REGISTRY COPYRIGHT 2010 ACS on STM
IN 1,2-Benzenediacarboxylic acid, 1-[6-[[4-[[5-[2-[4-cyano-5-[[di(cyanomethylene)-2,5-dihydro-2,2-dimethyl-3-furanyl]ethenyl]-2-thienyl]-1,3-butadien-1-yl]phenyl]ethylamino]hexyl] ester
MF C42 H40 N4 O4 S
CI COM



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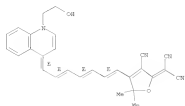
PAGE 1-B

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

141 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propenedinitrile,
 2-[3-cyano-4-[(1E,3E,5E,7E)-7-[1-(2-hydroxyethyl)-4(1E)-
 quinolinyldene]-1,3,5-heptatrien-3-yl]-5,5-dimethyl-2(5H)-
 furanylidene]-
 MF C28 H24 N4 O2

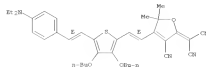
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

141 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propenedinitrile, 2-[3-cyano-4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-
 (diethylamino)phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-
 furanylidene]-
 MF C36 H42 N4 O3 S

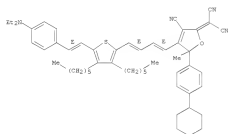
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

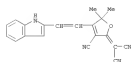
141 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propenedinitrile,
 2-[3-cyano-5-[4-(cyclohexylphenyl)-4-[(1E,3E)-4-[(5-[(1E)-
 2-[4-(diethylamino)phenyl]ethenyl]-3,6-dihexyl-2-thienyl)-1,3-butadien-1-
 yl]-5-octyl]-2(1H)-furan-2-ylidene]-
 MF C54 H64 N4 O S

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

141 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propenedinitrile, 2-[3-cyano-4-[2-(1E)-2-(1E)-2-(1E)-2-(1E)-2-(1E)-2-(1E)-
 2(1H)-furan-2-ylidene)-
 MF C28 H24 N4 O S

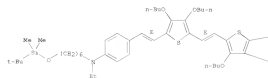


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

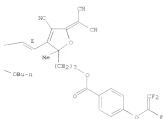
10560670.trn

L61 132 ANHMER REGISTRY COPYRIGHT 2010 ACS on STM
 IN Benzoic acid, 4-[[[2,2-trifluoroethyl]oxy]-
 3-[4-cyano-3-[[[1k]-2-[3,4-dibutoxy-5-[[[1k]-2-[4-
 [[6-[[[1,1-dimethylethyl]dimethylsilyl]oxy]heptylamino]phenyl]ethenyl
]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-5-(diisopropylethene)-2,5-dihydro-2-
 methyl-2-furanyl]propyl ester
 MF C75 H91 F3 N4 O9 S2 S4
 Double bond geometry as shown.

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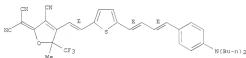


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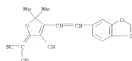
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANHMER REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propandinitrile, 2-[4-[[[2,2-trifluoroethyl]oxy]-3-[[[1k]-2-[3,4-dibutoxy-5-[[[1k]-2-[4-
 [[6-[[[1,1-dimethylethyl]dimethylsilyl]oxy]heptylamino]phenyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-5-(diisopropylethene)-2,5-dihydro-2-
 methyl-2-furanyl]propyl ester
 MF C74 H93 F3 N4 O S
 Double bond geometry as shown.



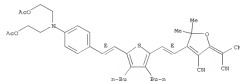
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANHMER REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propandinitrile, 2-[4-[[[2,2-trifluoroethyl]oxy]-3-[[[1k]-2-[3,4-dibutoxy-5-[[[1k]-2-[4-
 [[6-[[[1,1-dimethylethyl]dimethylsilyl]oxy]heptylamino]phenyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-5-(diisopropylethene)-2,5-dihydro-2-
 methyl-2-furanyl]propyl ester
 MF C75 H91 F3 N4 O9 S2 S4
 Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

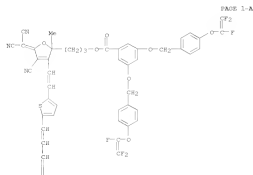
L61 132 ANHMER REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propandinitrile, 2-[4-[[[2,2-trifluoroethyl]oxy]-3-[[[1k]-2-[3,4-dibutoxy-5-[[[1k]-2-[4-
 [[6-[[[1,1-dimethylethyl]dimethylsilyl]oxy]heptylamino]phenyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-5-(diisopropylethene)-2,5-dihydro-2-
 methyl-2-furanyl]propyl ester
 MF C60 H46 N4 O5 S
 Double bond geometry as shown.



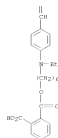
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

L41 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Phenol, 4-ethyl-*o*, homopolymer,
 6-[[4-[4-[5-[3-[2-[3-[[[5,5-bis[[4-[[[1,2,2-
 trifluoroethyl]oxy]phenyl]methoxy]benzoyl]oxy]propyl]-4-cyano-5-
 (diisopropylethene)-2,5-dithio-2-methyl-3-furanyl]ethenyl]-2-thienyl]-1,3-
 isoxas-1-yl]phenyl]ethylamino]benzyl 1,2-benzenedisulfonate
 4-[[1,2,2-trifluoroethyl]oxy]benzoate
 MF C59 H50 F4 N4 O11 S . x C9 H5 F3 O3 . x [C9 H9 O]x
 CH 3



L41 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM (Continued)
 PAGE 2-A



CH 2



CH 3

4



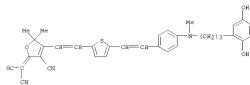
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L41 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propagandinitrile, 2-[3-cyano-4-[2-[2-furenyl]ethenyl]-5,5-dimethyl-2(iso)-
 furanylidene]-
 MF C14 H11 N3 O2
 CI



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L41 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propagandinitrile, 2-[3-cyano-4-[2-[5-[2-[4-[1,2,5-
 dihydroxyphenyl]propyl]methylamino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-
 dimethyl-2(iso)-furanylidene]-
 MF C14 H10 N4 O3 S
 CI COM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

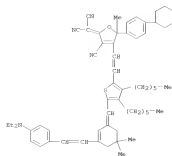
10560670.trn

L41 132 ANHMER REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(2H,4H,6H,8H)-8-(1-methyl-2(1H)-quinoxalinylidene)-2,4,6-octatrien-1-yl]-2(5H)-furylidene]-
 MF C20 H24 N4 O
 Double bond geometry as shown.



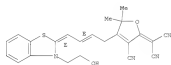
PROPERTY DATA AVAILABLE IN THE 'PDOC' FORMAT

L41 132 ANHMER REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[3-cyano-5-(4-cyclohexylphenyl)-4-[2-[5-[(3-[2-[4-(diethylanilino)phenyl]ethenyl]-5,5-dimethyl-2-cyclohexen-1-ylidene]methyl]-3,4-dihexyl-2-thienyl]ethenyl]-5-methyl-2(5H)-furylidene]-
 MF C50 H74 N4 O 2
 Double bond geometry as shown.



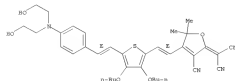
PROPERTY DATA AVAILABLE IN THE 'PDOC' FORMAT

L41 132 ANHMER REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[3-cyano-4-[(2E,4E)-4-[3-(2-hydroxyethyl)-2(3H)-benzothiazolylidene]-2-buten-1-yl]-5,5-dimethyl-2(5H)-furylidene]-
 MF C23 H20 N4 O 2
 Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PDOC' FORMAT

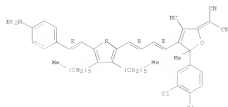
L41 132 ANHMER REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dibutoxy-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furylidene]-
 MF C36 H42 N4 O 2
 Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PDOC' FORMAT

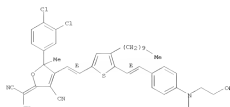
10560670.trn

L41 132 ANHMER REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile,
 2-[3-cyano-5-(5,4-dichlorophenyl)-4-[(1R,2R)-4-[5-[(1R)-
 2-[4-(dimethylamino)phenyl]ethenyl]-2,4-dihexyl-2-thienyl]-1,3-butadien-1-
 yl]-5-methyl-2[(5R)-furylidene]-
 MF C41 H52 Cl2 N4 O 5
 Double bond geometry as shown.



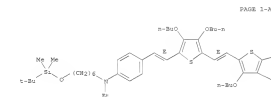
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L41 132 ANHMER REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[4-[(1R)-2-[5-[(1R)-2-[4-[hex-2-
 hydroxyethylamino]phenyl]ethenyl]-4-dicyl-2-thienyl]ethenyl]-1-2-cyano-5-
 (5,4-dichlorophenyl)-5-methyl-2[(5R)-furylidene]
 MF C63 H46 Cl2 N4 O3 5
 C1
 Double bond geometry as shown.

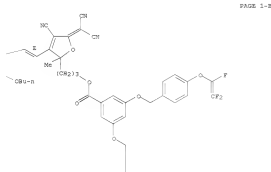


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L41 132 ANHMER REGISTRY COPYRIGHT 2010 ACS on STM
 IN Benzoic acid, 3,5-bis[[4-[(1,2,2-trifluoroethenyl)oxy]phenyl]methoxy]-,
 3-[4-cyano-3-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-
 [(4-[(1,1-dimethylethyl)dimethylsilyl]oxy]hexyl]ethylenamino]phenyl]ethenyl]-
 2-thienyl]ethenyl]-2-thienyl]ethenyl]-5-(diarynonemethylene)-2,5-dihydro-2-
 methyl-2-furyl]pyrrol ester
 MF C87 H102 F6 N4 O12 S2 11
 Double bond geometry as shown.



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L41 132 ANHMER REGISTRY COPYRIGHT 2010 ACS on STM (Continued)
 PAGE 2-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

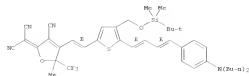
L61 132 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[3-cyano-4-[2-[3-furanyl]ethoxy]-5,5-dimethyl-2(5H)-
 furanylidene]-
 MF C16 H11 N3 O2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[5-[(1E,2E)-6-[4-(
 diethylamino)phenyl]-1,3-butadien-1-yl]-4-[[[(1,3-
 dimethylbutyl)dimethylsilyloxy]methoxy]-2-thienylethoxy]-5-methyl-5-
 (trifluoromethyl)-2(5H)-furanylidene]-
 MF C41 H49 F3 N4 O2 S2

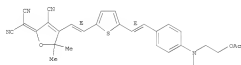
Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-
 (acetoxylethyl)amino)phenyl]ethoxy]-2-thienylethoxy]-3-cyano-5,5-
 dimethyl-2(5H)-furanylidene]-
 MF C32 H30 N4 O5 S

Double bond geometry as shown.

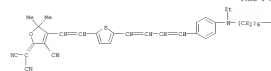


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L61 132 ANHESS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Phenol, 4-ethenyl-, homopolymers, benzoate
 6-[[4-[4-[5-[2-[4-cyano-5-(diacetoxylethyl)-2,5-dihydro-1,2-dimethyl-3-
 furanylidene]-2-thienyl]-3,3-butadiene-1-yl]phenyl]ethylamino]hexyl-
 1,2-benzenedicarboxylate
 MF C62 H60 N4 O8 S . x (C8 H8 O) n . x C7 H6 O2

CH 1

PAGE 1-A



PAGE 1-B



CH 2



CH 3

CH 4

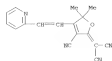


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

161 132 ANHEMS REGISTRY COPYRIGHT 2010 ACS on STM (Continued)

161 132 ANHEMS REGISTRY COPYRIGHT 2010 ACS on STM
28 Propenedinitrile,
2-[3-cyano-5,5-dimethyl-4-[2-(2-pyridinyl)ethenyl]-2(5H)-
Furanylidene]-
MF C17 H12 N4 O



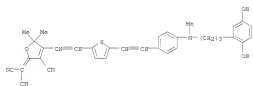
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

161 132 ANHEMS REGISTRY COPYRIGHT 2010 ACS on STM
28 Benzoic acid,
4,4'-[1,2,2-trifluoro-5-(trifluoromethyl)ethyldiene]bis[1,3-
dihydro-1,3-dioxo-1E-azocine-5,2-diyl]]bis-, polymer with
[3-cyano-4-[2-[5-[2-[4-[[3-(2,5-

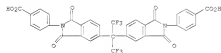
dihydroxyphenyl]propyl]methylamino]phenyl]ethenyl]-2-thienylethenyl]-5,5-
dimethyl-2(5H)-furan-2-ylidene]propanedinitrile (PCI)
MF C34 H30 N4 O3 S . C33 H16 F6 N2 O8x
CI PMS

RELATED POLYMERS AVAILABLE WITH POLYLIN

CN 1

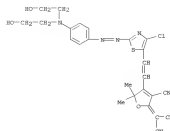


CN 2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

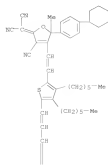
161 132 ANHEMS REGISTRY COPYRIGHT 2010 ACS on STM
28 Propenedinitrile, 2-[4-[2-[5-[2-[4-bis[1-
hydroxyethylamino]phenyl]diacetyl]-4-chloro-5-thiatolylethenyl]-3-cyano-
5,5-dimethyl-2(5H)-furan-2-ylidene]-
MF C23 H22 Cl N7 O3 S



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

10560670.trn

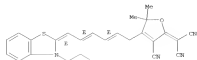
161 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[3-cyano-5-[4-cyclohexylphenyl]-4-[2-[5-[3-[2-[4-(diethylamino)phenyl]ethenyl]-5,5-dimethyl-2-cyclohexen-1-ylidene]-1-propen-1-yl]-2,4-diethyl-2-thienyl]ethenyl]-5-methyl-2(5H)-furyrlydene]-
 MF C52 H76 N4 O S



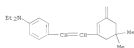
PAGE 1-A

161 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[3-cyano-4-[(2E,4E,6E)-4-[7-(2-hydroxyethyl)-2(5H)-benzothiazolylidene]-2,4-hexadien-1-yl]-5,5-dimethyl-2(5H)-furyrlydene]-
 MF C25 H22 N4 O S

Double bond geometry as shown.



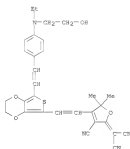
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT



PAGE 2-A

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

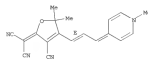
161 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[[[1,1,1-trimethyl-2-(diethylamino)ethoxy]methyl]-5-[(1E)-2-[4-[(ethyl-2-hydroxyethyl)amino]phenyl]ethenyl]-2,4-dihydro-2H-pyridin-5-yl]ethenyl]-5,5-dimethyl-2(5H)-furyrlydene]- (EC)
 MF C37 H44 N4 O S
 CI 126



PAGE 1-A

161 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propanedinitrile, 2-[3-cyano-5,5-dimethyl-4-[(1E)-2-[1-methyl-4(1E)-pyridinylidene]-1-propen-1-yl]-2(5H)-furyrlydene]-
 MF C19 H18 N4 O

Double bond geometry as shown.



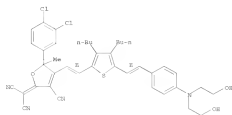
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT



PAGE 2-A

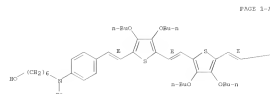
10560670.trn

L41 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Preparednitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-5-cyano-5-[3,4-dichlorophenyl]-5-methyl-2(1E)-fucanilidene]-
 MF C41 H42 Cl2 N4 O2 S
 Double bond geometry as shown.

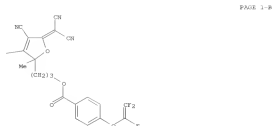


PROPERTY DATA AVAILABLE IN THE 'PQOP' FORMAT

L41 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Benzoic acid, 4-[1,2,2-trifluoroethyl]oxy]-, 3-[4-cyano-5-[(1E)-2-[1,4-dibutyl-5-[(1E)-2-[4-[ethoxy(6-hydroxyphenyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5-(diisopropylethene)-2,5-dihydro-2-methyl-2-fucanilidene] ester
 MF C65 H77 F3 N4 O9 S2
 Double bond geometry as shown.



PAGE 3-A



PAGE 3-B

PROPERTY DATA AVAILABLE IN THE 'PQOP' FORMAT

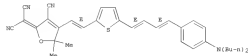
L41 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Preparednitrile, 2-[3-cyano-5,5-dimethyl-4-[2-(3-thienyl)ethenyl]-2(1E)-fucanilidene]-
 MF C40 H34 N4 O2 S



PROPERTY DATA AVAILABLE IN THE 'PQOP' FORMAT

L41 132 ANWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Preparednitrile, 2-[3-cyano-4-[(1E)-2-[5-[(1E)-2-[4-[diethylamino]phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-5,5-dimethyl-2(1E)-fucanilidene]-
 MF C34 H36 N4 O2 S

Double bond geometry as shown.



PROPERTY DATA AVAILABLE IN THE 'PQOP' FORMAT

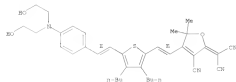
10560670.trn

L41 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propenadinitrile, [4-[(1R)-2-[5-[(1R)-2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furylidene]-, polymer with 1,1-dicyanopentaerythritolone (PCI)
 MF C16 H42 N4 O3 S . C9 H6 N2 O2 S
 CI 295

***RELATED POLYMERS AVAILABLE WITH POLYLENE**

CH 3

Double bond geometry as shown.



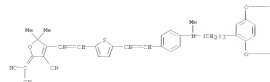
CH 2



D1-Me

L41 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propenadinitrile, 2-[4-[2-[5-[2-[4-[1,3-[2,5-bis[(1,1-dimethylethyl)dimethylsilyl]oxy]phenyl]propyl]methoxy]phenyl]ethenyl]-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furylidene]-
 MF C46 H50 N4 O3 S N42

PAGE 1-A

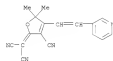


PAGE 1-B



***PROPERTY DATA AVAILABLE IN THE "PROP" FORMAT**

L41 132 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STM
 IN Propenadinitrile,
 2-[3-cyano-5,5-dimethyl-4-[2-[3-pyridinyl]ethenyl]-2(5H)-furylidene]-
 MF C17 H12 N4 O



***PROPERTY DATA AVAILABLE IN THE "PROP" FORMAT**

ALL ANSWERS HAVE BEEN SCANNED

10560670.trn

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L1 STRUCTURE UPLOADED
L2 0 S L1
L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010

L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010

L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010

L6 172 SEA L5
L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010

L8 0 S OTOPHORE
L9 1 S OPTOPHORE
L10 0 S L3 AND L9
L11 12 S L4 OR L9
L12 26 S ELECTRO-OPTIC CHROMOPHORES

10560670.trn

L29 FILE 'CAPLUS' ENTERED AT 15:18:50 ON 07 JUN 2010
L30 90 S L27
13 S L28

L31 FILE 'REGISTRY' ENTERED AT 15:19:23 ON 07 JUN 2010
1 S L27 AND HYDROXYETHYL

L32 FILE 'CAPLUS' ENTERED AT 15:20:35 ON 07 JUN 2010
L33 6 S L31
L34 19 S L32 OR L30
L35 4286 S MEROCYANINE
L36 91 S L34 AND REVIEW/DT
L37 0 S L35 AND FURNA
L38 0 S L35 AND FURAN
9 S L34 AND FURAN

FILE 'STNGUIDE' ENTERED AT 15:43:31 ON 07 JUN 2010

L39 FILE 'REGISTRY' ENTERED AT 16:06:27 ON 07 JUN 2010
L40 STRUCTURE UPLOADED
L41 50 S L39
L42 947 S L39 FULL
54 S L41 AND C5N/RF

L43 FILE 'CAPLUS' ENTERED AT 16:09:52 ON 07 JUN 2010
20 S L42

10560670.trn

L56	23 S SUB=L41 SAM L55
L57	23 S SAM L53 SUB=L41
L58	471 S FULL L53 SUB=L41
L59	424 S L58 NOT L42
L60	471 S L58 NOT 45
L61	132 S L60 AND ED<=2004

=> s l61 not l45
L62 131 L61 NOT L45

=> s l61 not l42
L63 118 L61 NOT L42

=> file caplus

FILE 'CAPLUS' ENTERED AT 16:23:30 ON 07 JUN 2010
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144 114 NUMBERS CARLOS COPYRIGHT 2010 ACS on STM
CC 73-8 [Crystallography and Liquid Crystals]
Section cross-reference(s): 22, 27, 72
71 A non-linear optical chromophore, 2-[3-oxano-4-[(R)-[5-[4-
[diethylamino]ethyl]thiophen-2-yl]vinyl]-5,5-dimethylfuran-2-(5H)-
ylidene]propanedinitrile
ST mol. structure cyanodimethylaminoethylthiophenylvinyl methylfuranylidene
propanedinitrile nonlinear optical material; crystal structure
cyanodimethylaminoethylthiophenylvinyl methylfuranylidenepropanedinitrile
IT Nonlinear optical materials
crystal structure
of [cyanol[1,1-dimethylamino]ethyl]thiophenylvinylidene
methylfuranylidene]propanedinitrile
IT Crystal structure
Molecular structure
of
[cyanol[1,1-dimethylamino]ethyl]thiophenylvinylidene dimethylfuranylidene
]propanedinitrile
IT T0411-75-1
RI: PEP (Properties);
crystal and mol. structure of)
HOW MANY MORE NUMBERS DO YOU WISH TO SCANT (1)1

144 116 NUMBERS CARLOS COPYRIGHT 2010 ACS on STM
CC 73-4 [Optical, Electron, and Mass Spectroscopy and Other Related
Properties]
Section cross-reference(s): 26
71 Near-infrared optical-absorption behavior in high-beta nonlinear optical
chromophore-polymer guest-host materials. 11. Dye spacer length effects
in
an amorphous polycarbonate copolymer host
ST near IR nonlinear optical dye homopolymers aromatic polycarbonates host
IT Electrooptical absorption
[IR] near-IR optical-absorption behavior in high-β nonlinear
optical chromophore-polymer guest-host materials and dye spacer length
effects in an amorphous polycarbonate copolymer host)
IT Dipole moment
(difference between ground and excited states) near-IR
optical-absorption behavior in high-β nonlinear optical
chromophore-polymer guest-host materials and dye spacer length effects
in an amorphous polycarbonate copolymer host)
IT Free energy
(excess, and inhomogeneous peak width) near-IR optical-absorption
behavior in high-β nonlinear optical chromophore-polymer
guest-host materials and dye spacer length effects in an amorphous
polycarbonate copolymer host)
IT Polycarbonates, properties
RI: PEP (Properties)
[host] near-IR optical-absorption behavior in high-β nonlinear
optical chromophore-polymer guest-host materials and dye spacer length
effects in an amorphous polycarbonate copolymer host)
IT Molecular structure-property relationship
(inhomogeneous width vs. dye alkyl spacer length) near-IR
optical-absorption behavior in high-β nonlinear optical
chromophore-polymer guest-host materials and dye spacer length effects
in an amorphous polycarbonate copolymer host)
IT Thermodynamic activity
(interaction coefficient vs. loss-concentration slope) near-IR
optical-absorption
behavior in high-β nonlinear optical chromophore-polymer
guest-host materials and dye spacer length effects in an amorphous
polycarbonate copolymer host)
IT Cyclic urea
Homopolymer series
[near-IR optical-absorption behavior in high-β nonlinear optical
chromophore-polymer guest-host materials and dye spacer length effects
in an amorphous polycarbonate copolymer host)
IT IR absorption
[near-IR overtone] near-IR optical-absorption behavior in high-β
nonlinear optical chromophore-polymer guest-host materials and dye
spacer length effects in an amorphous polycarbonate copolymer host)
IT Molar volume
Solubility
[vs. dye alkyl spacer length] near-IR optical-absorption behavior in
high-β nonlinear optical chromophore-polymer guest-host materials
and dye spacer length effects in an amorphous polycarbonate copolymer
host)
IT Henry's law
[vs. loss-concentration slope] near-IR optical-absorption behavior in

144 118 NUMBERS CARLOS COPYRIGHT 2010 ACS on STM (Continued)
high-β nonlinear optical chromophore-polymer guest-host materials
and dye spacer length effects in an amorphous polycarbonate copolymer
host)
IT 417796-73-5, IMCO 426m 672256-33-4, IMCO 426m
670256-34-3, IMCO 426m 672256-33-4, IMCO 426m
RI: PEP (Properties); TEM (Technical or engineered material use); USES
[Case]
[dopant] near-IR optical-absorption behavior in high-β nonlinear
optical chromophore-polymer guest-host materials and dye spacer length
effects in an amorphous polycarbonate copolymer host)
IT 232712-28-7, Bisphenol A-carbonate
acid-1,1,3-trimethyl-2-cyclohexanecarboxylate
copolymer
RI: PEP (Properties); TEM (Technical or engineered material use); USES
[Case]
[polymer host] near-IR optical-absorption behavior in high-β
nonlinear optical chromophore-polymer guest-host materials and dye
spacer length effects in an amorphous polycarbonate copolymer host)
HOW MANY MORE NUMBERS DO YOU WISH TO SCANT (1)10

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L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010

L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010

L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010

L6 172 SEA L5
L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010

L8 0 S OTOPHORE
L9 1 S OPTOPHORE
L10 0 S L3 AND L9
L11 12 S L4 OR L9
L12 26 S ELECTRO-OPTIC CHROMOPHORES

10560670.trn

L29 FILE 'CAPLUS' ENTERED AT 15:18:50 ON 07 JUN 2010
L30 90 S L27
13 S L28

L31 FILE 'REGISTRY' ENTERED AT 15:19:23 ON 07 JUN 2010
1 S L27 AND HYDROXYETHYL

L32 FILE 'CAPLUS' ENTERED AT 15:20:35 ON 07 JUN 2010
L33 6 S L31
L34 19 S L32 OR L30
L35 4286 S MEROCYANINE
L36 91 S L34 AND REVIEW/DT
L37 0 S L35 AND FURNA
L38 0 S L35 AND FURAN
9 S L34 AND FURAN

FILE 'STNGUIDE' ENTERED AT 15:43:31 ON 07 JUN 2010

L39 FILE 'REGISTRY' ENTERED AT 16:06:27 ON 07 JUN 2010
L40 STRUCTURE UPLOADED
L41 50 S L39
L42 947 S L39 FULL
54 S L41 AND C5N/RF

L43 FILE 'CAPLUS' ENTERED AT 16:09:52 ON 07 JUN 2010
20 S L42

10560670.trn

L56 23 S SUB=L41 SAM L55
L57 23 S SAM L53 SUB=L41
L58 471 S FULL L53 SUB=L41
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L61 132 S L60 AND ED<=2004
L62 131 S L61 NOT L45
L63 118 S L61 NOT L42

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=> s l64 and pd<=2003
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 (PD<=20039999)
L65 53 L64 AND PD<=2003

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STRUCTURE FILE UPDATES: 3 JUN 2010 HIGHEST RN 1226953-63-4

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TRA L4 1- RN : 172 TERMS

L6 FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010
172 SEA L5

L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010

L8 0 S OTOPHORE
L9 1 S OPTOPHORE
L10 0 S L3 AND L9
L11 12 S L4 OR L9
L12 26 S ELECTRO-OPTIC CHROMOPHORES
L13 0 S ELECTROPTIC CHROMOPHORES
L14 27 S ELECTROOPTIC CHROMOPHORES
L15 11072 S ELECTROOPTIC
L16 660 S L15 AND CHROMOPHORE
L17 679 S L12 OR L14 OR L16

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10560670.trn

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L33      19 S L32 OR L30
L34      4286 S MEROCYANINE
L35      91 S L34 AND REVIEW/DT
L36      0 S L35 AND FURNA
L37      0 S L35 AND FURAN
L38      9 S L34 AND FURAN

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L41      947 S L39 FULL
L42      54 S L41 AND C5N/RF

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L43      20 S L42

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L45      19 S L41 AND C3NS/RF
L46      0 S L41 AND C3NSE/RF
L47      0 S L41 AND C3SEN/RF
L48      0 S L41 AND SE/ELS
L49      0 S L41 AND SE/ES
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10560670.trn

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L65 53 S L64 AND PD<=2003

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FILE 'CAPLUS' ENTERED AT 16:24:12 ON 07 JUN 2010
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L67 627 SEA L66

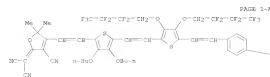
=> s 167 and 164

L68 95 L67 AND L64

=> d scan

10560670.trn

168 95 AMMERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propandinitrals, 2-[4-[2-[5-[2-[5-[2-[4-[bis[2-
hydroxyethyl)amino]phenyl]ethyl]-3,4-bis(2,2,3,4,4,4-
heptafluorobutoxy)-2-thienyl]ethyl]-3,4-dibutoxy-2-thienyl]ethyl]-3-
cyazo-5,5-dimethyl-2(5H)-furylidene]-
M⁺ C50 H49 F14 N6 O7 S2



PAGE 1-2



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (3)+2

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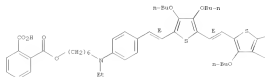
LE8 95 4488658 1151767 COPYRIGHT 2010 ACS on STM
IN Phenol, 4-ethenyl-, homopolymer,
6-[1-6-[(1K)-2-[5-1[(1K)-2-[5-1[(1K)-2-[2-[3-
1[3,5-bis[1-4-ethenyl]phenyl]ethoxy]phenyl]methoxy]benzoyloxy]propyl]-4-
cyano-5-(diacyanovinyl)ene]-2,5-dihydro-2-methyl-3-furyl]ethenyl]-3,4-di-
hydro-2-ethenyl]ethenyl]-2,4-dibutoxy-2-
thienyl]ethenyl]phenyl]ethenyl]-2,4-dibutoxy-2-
thienyl]ethenyl]phenyl]ethenyl]-2,4-dibutoxy-2-
thienyl]ethenyl]phenyl]ethenyl]benzoate [9C1]
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213

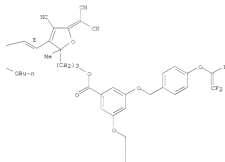
Double bond geometry as shown.

PAGE 2-A



168 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STM (Continued)

PAGE. 3-38



PAGE 2-8



OK 2



ON 3

91 4

168 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

(Continued)



HOW MANY MORE ANSWERS DO YOU WISH TO SCANT (1) 1

10560670.trn

168 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN

(Continued)

PAGE 2-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCANT (1)11

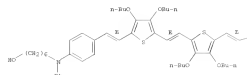
168 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN

IN Benzoic acid, 3,5-bis[4-[[1,2,2-trifluoroethoxy]oxy]phenyl]methoxy]-, 3-[4-cyano-5-[(1E)-2-[1,4-dibutoxy-5-[(1E)-2-[4-[[4-[[1,2,2-trifluoroethoxy]oxy]phenyl]ethenyl]-2-thienyl]ethenyl]-5-(dicyanomethylene)-2,5-dihydro-2-methyl-2-furanyl]propyl]ester

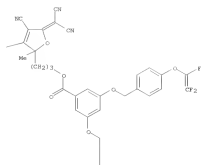
MF C81 H88 F6 H4 O12 S2

Double bond geometry as shown.

PAGE 1-A



PAGE 1-B



168 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN

(Continued)

PAGE 2-B



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCANT (1)11

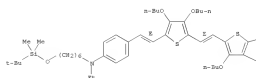
168 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN

IN Benzoic acid, 3,5-bis[4-[[1,2,2-trifluoroethoxy]oxy]phenyl]methoxy]-, 3-[4-cyano-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-[[4-[[1,1,1-dimethylethyl]dimethylsilyl]oxy]phenyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-5-(dicyanomethylene)-2,5-dihydro-2-methyl-2-furanyl]propyl]ester

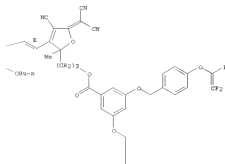
MF C87 H102 F6 H4 O12 S2

Double bond geometry as shown.

PAGE 1-A



PAGE 1-B



168 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)
IN Propagandinitrile, 2-[3-cyano-4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-
dimethyl(2-methylamino)phenyl]ethenyl]-2-thienyl]ethenyl]-5-(3-hydroxypropyl)-5-methyl-2(5H)-
furan-2-ylidene]-2-thienyl]ethenyl]-5-(3-hydroxypropyl)-5-methyl-2(5H)-
furan-2-ylidene]



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

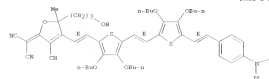
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1) 1

168 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propagandinitrile, 2-[3-cyano-4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-
dimethyl(2-methylamino)phenyl]ethenyl]-2-thienyl]ethenyl]-5-(3-hydroxypropyl)-5-methyl-2(5H)-
furan-2-ylidene]-2-thienyl]ethenyl]-5-(3-hydroxypropyl)-5-methyl-2(5H)-
furan-2-ylidene]

MF C62 H88 N4 O7 S2 Sx

Double bond geometry as shown.

PAGE 1-A



PAGE 1-B



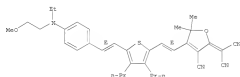
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1) 1

168 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propagandinitrile, 2-[3-cyano-4-[(1E)-2-[5-[(1E)-2-[4-[ethyl(2-methoxyethylamino)phenyl]ethenyl]-3,4-dipropyl-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furan-2-ylidene]-2-thienyl]ethenyl]-5-(3-hydroxypropyl)-5-methyl-2(5H)-furan-2-ylidene]

MF C39 H40 N4 O2 S

Double bond geometry as shown.



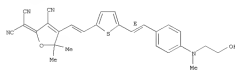
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1) 1

168 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propagandinitrile, 2-[3-cyano-4-[(2-[5-[(1E)-2-[4-[2-hydroxyethyl(methylamino)phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furan-2-ylidene]-2-thienyl]ethenyl]-5-(3-hydroxypropyl)-5-methyl-2(5H)-furan-2-ylidene]

MF C27 H24 N4 O2 S

Double bond geometry as described by I or Z.



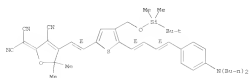
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1) 1

10560670.trn

L&S 95 ANIMERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propenedinitrile, 2-[3-cyano-4-[[1R)-2-[5-[[1R,2E)-6-[4-
 (diisobutylamino)phenyl]-3,3-butadien-1-yl]-4-[[[1,1-
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 (5H)-furanidene]-
 MF C41 H52 N4 O2 S S1

Double bond geometry as shown.

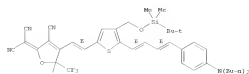


***PROPERTY DATA AVAILABLE IN THE 'PDB' FORMAT**

HOW MANY MORE ANIMERS DO YOU WISH TO SCAN? (1):1

L&S 95 ANIMERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propenedinitrile, 2-[3-cyano-4-[[1R)-2-[5-[[1R,2E)-6-[4-
 (diisobutylamino)phenyl]-1,3-butadien-1-yl]-4-[[[1,1-
 dimethyl-2-ethoxy-1-ethoxy]methyl]-2-thienyl]ethenyl]-5-methyl-5-
 (trifluoromethyl)-2 (5H)-furanidene]-
 MF C51 H68 F3 N4 O2 S S1

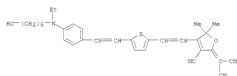
Double bond geometry as shown.



***PROPERTY DATA AVAILABLE IN THE 'PDB' FORMAT**

HOW MANY MORE ANIMERS DO YOU WISH TO SCAN? (1):1

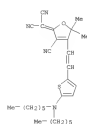
L&S 95 ANIMERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propenedinitrile, 2-[3-cyano-4-[2-[[5-[[2-[[ethyl(6-
 hydroxyhexyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2 (5H)-
 furanidene]-
 MF C32 H34 N4 O2 S



***PROPERTY DATA AVAILABLE IN THE 'PDB' FORMAT**

HOW MANY MORE ANIMERS DO YOU WISH TO SCAN? (1):1

L&S 95 ANIMERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propenedinitrile,
 2-[3-cyano-4-[2-[5-(diisobutylamino)-2-thienyl]ethenyl]-5,5-
 dimethyl-2 (5H)-furanidene]-
 MF C28 H36 N4 O 2 S



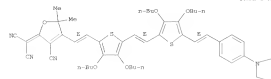
***PROPERTY DATA AVAILABLE IN THE 'PDB' FORMAT**

HOW MANY MORE ANIMERS DO YOU WISH TO SCAN? (1):1

10560670.trn

L68 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[5-[(1E)-2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-2,4-dibutoxy-2-methoxy-2-thienyl]ethenyl]-3-cyano-3,5-dimethyl-2-thiophenylidene]-furan]idene]-2-thienyl]ethenyl]-5,5-dimethyl-2-thiophenylidene]-furan]idene]
MF C50 H62 N4 O7 S2

Double bond geometry as shown.



PAGE 1-A

PAGE 1-B

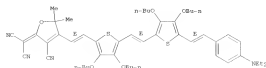


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1)1

L68 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Propanedinitrile, 2-[3-cyano-4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2-thiophenylidene]-furan]idene]
MF C50 H62 N4 O5 S2

Double bond geometry as shown.

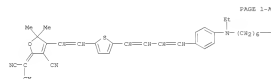


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1)1

L68 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
IN Phenol, 4-ethenyl-, homopolymer; benzoate
S-[14-[4-[5-[2-[4-cyano-5-(dicyanomethylene)-2,5-dihydro-2,2-dimethyl-3-furanyl]ethenyl]-2-thienyl]-n,3-quinoxalin-1-yl]phenyl]ethylamino]heptyl 1,2-benzenedicarboxylate
MF C42 H46 N4 O5 S . n (C8 H8 O) x . n C7 H6 O2

CM 1



PAGE 1-A



CM 2



CM 3

CM 4

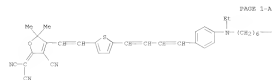


PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

L68 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)
HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1)1

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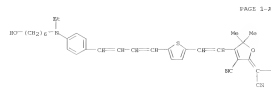
148 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN 3,2-benzonadimethoxylic acid, 1-[6-[[4-[4-[5-[2-[4-cyano-5-
 (diazanomethylene)-2,5-dihydro-2,2-dimethyl-2-furanyl]ethenyl]-2-thienyl]-
 3,3-bisaden-1-yl]phenyl]ethylamino]benzyl] ester
 MF C42 H40 H4 O6 S
 CI CCM



PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

148 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Propagandistatin, 2-[3-cyano-4-[2-[5-[4-[4-ethyl(6-
 hydroxyheptylamino)phenyl]-1,3-bisaden-1-yl]-2-thienyl]ethenyl]-5,5-
 dimethyl-2-[5(8-furanylidene)-
 MF C34 H36 H4 O2 S

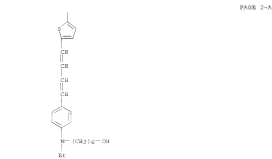
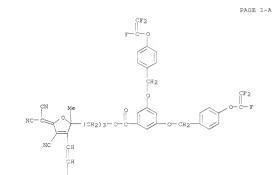


—CH

PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

148 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN
 IN Benzoic acid, 5,2-bis[[4-[[[1,2,2-tetrafluoroethenyl]oxy]phenyl]methoxy]-,
 3-[4-cyano-5-(diazanomethylene)-3-[2-[5-[4-[4-ethyl(6-
 hydroxyheptylamino)phenyl]-1,3-bisaden-1-yl]-2-thienyl]ethenyl]-2,5-
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 MF C62 H54 F6 H4 O6 S



148 95 ANSWERS REGISTRY COPYRIGHT 2010 ACS on STN (Continued)

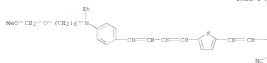
PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT

HOW MANY MORE ANSWERS DO YOU WISH TO SCAN? (1):1

10560670.trn

L&R 95 ANSWERS RIGHTSTY COPYRIGHT 2010 ACS on STN
 III Propanedinitrile, 2-[5-cyano-4-[2-[5-(4-[4-[ethyl(6-
 (methoxymethoxy)heptyl]amino]phenyl]-1,3-butadien-3-yl]-2-ethoxy]ethoxy]-
 5-[3-hydroxypropyl]-5-methyl-2(5H)-furylidene]-
 MF C38 H44 N4 O4 S

PAGE 1-A



PAGE 1-B



***PROPERTY DATA AVAILABLE IN THE 'PROP' FORMAT**

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10560670.trn

=> d his

(FILE 'HOME' ENTERED AT 14:57:21 ON 07 JUN 2010)

FILE 'REGISTRY' ENTERED AT 14:57:36 ON 07 JUN 2010

L1 STRUCTURE UPLOADED

L2 0 S L1

L3 14 S L1 FULL

FILE 'CAPLUS' ENTERED AT 14:59:17 ON 07 JUN 2010

L4 11 S L3

FILE 'REGISTRY' ENTERED AT 14:59:29 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 14:59:33 ON 07 JUN 2010

L5 TRA L4 1- RN : 172 TERMS

FILE 'REGISTRY' ENTERED AT 14:59:34 ON 07 JUN 2010

L6 172 SEA L5

L7 1 S L3 NOT L6

FILE 'CAPLUS' ENTERED AT 15:00:42 ON 07 JUN 2010

L8 0 S OTOPHORE

L9 1 S OPTOPHORE

L10 0 S L3 AND L9

L11 12 S L4 OR L9

L12 26 S ELECTRO-OPTIC CHROMOPHORES

L13 0 S ELECTROPTIC CHROMOPHORES

L14 27 S ELECTROOPTIC CHROMOPHORES

L15 11072 S ELECTROOPTIC

L16 660 S L15 AND CHROMOPHORE

L17 679 S L12 OR L14 OR L16

FILE 'REGISTRY' ENTERED AT 15:04:07 ON 07 JUN 2010

L18 269403 S C6N/RF

FILE 'CAPLUS' ENTERED AT 15:04:59 ON 07 JUN 2010

L19 TRA L17 1- RN : 3023 TERMS

FILE 'REGISTRY' ENTERED AT 15:05:14 ON 07 JUN 2010

L20 3023 SEA L19

L21 214 S L20 AND C5N/RF

L22 21 S L21 AND PROPANEDINITRILE

L23 5 S L21 AND DICYANOMETHYLENE

L24 25 S L22 OR L23

L25 25 S L24 NOT L3

FILE 'CAPLUS' ENTERED AT 15:14:48 ON 07 JUN 2010

L26 99 S L25

FILE 'CAPLUS' ENTERED AT 15:15:01 ON 07 JUN 2010

FILE 'REGISTRY' ENTERED AT 15:16:51 ON 07 JUN 2010

L27 6 S L25 AND 5<=REF.CAPLUS

L28 19 S L25 NOT L27

10560670.trn

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L29 90 S L27
L30 13 S L28

FILE 'REGISTRY' ENTERED AT 15:19:23 ON 07 JUN 2010
L31 1 S L27 AND HYDROXYETHYL

FILE 'CAPLUS' ENTERED AT 15:20:35 ON 07 JUN 2010
L32 6 S L31
L33 19 S L32 OR L30
L34 4286 S MEROCYANINE
L35 91 S L34 AND REVIEW/DT
L36 0 S L35 AND FURNA
L37 0 S L35 AND FURAN
L38 9 S L34 AND FURAN

FILE 'STNGUIDE' ENTERED AT 15:43:31 ON 07 JUN 2010

FILE 'REGISTRY' ENTERED AT 16:06:27 ON 07 JUN 2010
L39 STRUCTURE UPLOADED
L40 50 S L39
L41 947 S L39 FULL
L42 54 S L41 AND C5N/RF

FILE 'CAPLUS' ENTERED AT 16:09:52 ON 07 JUN 2010
L43 20 S L42

FILE 'REGISTRY' ENTERED AT 16:12:09 ON 07 JUN 2010
L44 0 S L41 AND C2NS/RF
L45 19 S L41 AND C3NS/RF
L46 0 S L41 AND C3NSE/RF
L47 0 S L41 AND C3SEN/RF
L48 0 S L41 AND SE/ELS
L49 0 S L41 AND SE/ES
L50 0 S L41 AND C2NO/RF

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L51 10 S L45
L52 STRUCTURE UPLOADED
S L52

FILE 'REGISTRY' ENTERED AT 16:16:10 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 16:16:10 ON 07 JUN 2010
L53 STRUCTURE UPLOADED
S L53

FILE 'REGISTRY' ENTERED AT 16:17:35 ON 07 JUN 2010
L54 23 S L53

FILE 'CAPLUS' ENTERED AT 16:17:36 ON 07 JUN 2010
L55 48 S L54

FILE 'REGISTRY' ENTERED AT 16:17:41 ON 07 JUN 2010

10560670.trn

L56 23 S SUB=L41 SAM L55
L57 23 S SAM L53 SUB=L41
L58 471 S FULL L53 SUB=L41
L59 424 S L58 NOT L42
L60 471 S L58 NOT 45
L61 132 S L60 AND ED<=2004
L62 131 S L61 NOT L45
L63 118 S L61 NOT L42

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L64 116 S L63
L65 53 S L64 AND PD<=2003

FILE 'REGISTRY' ENTERED AT 16:24:06 ON 07 JUN 2010

FILE 'CAPLUS' ENTERED AT 16:24:12 ON 07 JUN 2010
L66 TRA L65 1- RN : 627 TERMS

FILE 'REGISTRY' ENTERED AT 16:24:25 ON 07 JUN 2010
L67 627 SEA L66
L68 95 S L67 AND L64

=> file caplus

FILE 'CAPLUS' ENTERED AT 16:26:07 ON 07 JUN 2010
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PLEASE SEE "HELP USAGETERMS" FOR DETAILS.
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FILE COVERS 1907 - 7 Jun 2010 VOL 152 ISS 24
FILE LAST UPDATED: 6 Jun 2010 (20100606/ED)
REVISED CLASS FIELDS (/NCL) LAST RELOADED: Apr 2010
USPTO MANUAL OF CLASSIFICATIONS THESAURUS ISSUE DATE: Apr 2010

Caplus now includes complete International Patent Classification (IPC) reclassification data for the second quarter of 2010.

CAS Information Use Policies apply and are available at:

<http://www.cas.org/legal/infopolicy.html>

This file contains CAS Registry Numbers for easy and accurate substance identification.

=> d l65 cbib abs hitstr 1-

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YOU HAVE REQUESTED DATA FROM 53 ANSWERS - CONTINUE? Y/(N):y

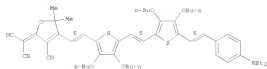
163 ANSWER 1 OF 53 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)
 20041001020 Document No. 1413040090 Fluorinated pi-bridge amount order
 nonlinear optical chromophores and electro-optic devices therefrom.
 Bandy, Deyan (Nemco Corporation, USA), D. B. Nat. Appl. Pat. US
 2004192842 A1 20040930, 20 pp., Cont.-In-part of U.S. Pat. No. 391,978.
 (English) C00BN 000000, APPLICATION NO. 2004-79795 20040314.
 PRIORITY: US 2002-301978 20021122; US 2001-932831 20010817; US
 2000-124079 20000917.

AB Nonlinear optical chromophores are described by the general formula
 2-A-X-A, in which A is a bridge including a thiophene ring having oxygen
 atoms bonded directly to the 3 and 4 positions of the thiophene ring; D =
 a donor; A = an acceptor; and the oxygen atoms are further substituted
 with a fluorinated group comprising 31 fluorine(s). Second order
 nonlinear optical composites comprising a polymer matrix and the
 chromophores are also described. Electrooptical devices (e.g., optical modulators,
 optical switches, and optical directional couplers) and electro-optically
 assisted phase array radar systems are described which employ the
 composites.

IT 540777-74-CP 540777-78-CP
 RI: DEV (Device component use); SPN (Synthetic preparation); PREP
 (Preparation only) US00 (Free)
 (Fluorinated pi-bridge nonlinear optical chromophores and composites and
 electrooptical devices using them)

22 540777-74-5 CAPLUS
 CN Propandinitrile, 2-[4-(3-cyano-4-[(1E)-2-[3,4-dimethoxy-5-[(1E)-2-[3,4-
 dimethoxy-5-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]-2-thienyl]ethenyl]-3-
 thienyl]ethenyl]-2,5-dimethyl-2(1H)-furyanyl]idene]- (CA INDEX NAME)

Double bond geometry as shown.

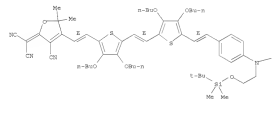


22 540777-78-4 CAPLUS
 CN Benzoic acid, 4-[[[(1E)-2-[3,4-dimethoxy-5-[(1E)-2-[3,4-dimethoxy-5-
 [(1E)-2-[3,4-dimethoxy-5-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]-2-thienyl]
 ethenyl]-3-thienyl]ethenyl]-2,5-dimethyl-2(1H)-furyanyl]idene] ester
 (9CI) (CA INDEX NAME)

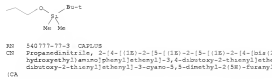
Double bond geometry as shown.

165 ANSWER 1 OF 53 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)

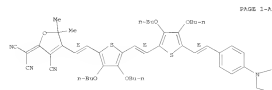
PAGE 1-A



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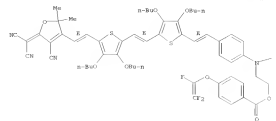
Double bond geometry as shown.



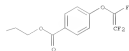
PAGE 1-A

165 ANSWER 1 OF 53 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)

PAGE 1-A



PAGE 1-B



IT 540777-76-2P 540777-77-2P
 RI: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT
 (Reactant or reagent)
 (Fluorinated pi-bridge nonlinear optical chromophores and composites and
 electrooptical devices using them)

22 540777-76-2 CAPLUS
 CN Propandinitrile, 2-[4-(3-cyano-4-[(1E)-2-[3,4-dimethoxy-5-[(1E)-2-[3,4-
 dimethoxy-5-[(1E)-2-[3,4-dimethoxy-5-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]-2-
 thienyl]ethenyl]-3,4-dimethoxy-5-thienyl]ethenyl]-3-cyano-5,5-dimethyl-
 2(1H)-furyanyl]idene]- (CA INDEX NAME)

Double bond geometry as shown.

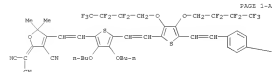
165 ANSWER 1 OF 53 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)

PAGE 1-B



IT 765317-91-7P
 RI: SPN (Synthetic preparation); TDM (Technical or engineered material
 use); PREP (Preparation); US00 (Free)
 (Fluorinated pi-bridge nonlinear optical chromophores and composites and
 electrooptical devices using them)

22 765317-91-7 CAPLUS
 CN Propandinitrile, 2-[4-(2-[5-[2-[5-[2-[4-[[bis(2-
 hydroxyethyl)amino]phenyl]ethenyl]-2,4-bis(2,2,3,3,4,4,6-
 heptafluoroisopropyl)-2-thienyl]ethenyl]-3,4-dimethoxy-2-thienyl]ethenyl]-3-
 cyano-5,5-dimethyl-2(1H)-furyanyl]idene]- (CA INDEX NAME)



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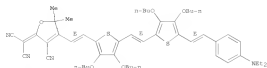
PAGE 1-B

163 ANWEMER 2 OF 53 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)
 2004:155794 Document No. 141:106890 Polymers having pendant nonlinear optical chromophores and electro-optic devices made from them. Huang, Jiyun; Chen, Biao; Bureau (Lumera Corporation, USA). U.S. Pat. Appl. Publ. US 20040132940 A1 20040709, 23 pp., Cont.-in-part of U.S. Ser. No. 395,610. (English). COIN: USPOCO, APPLICANT: CHN. US 2003-653371 20030722. 31010777; US 2003-194610 20030324; US 2002-301978 20021127; US 2001-318371

20010411; US 2000-232677 20000817.
 AB The invention relates to a nonlinear optical chromophore having the formula B-n-A, wherein x is a bridge including a thiophene ring having oxygen atoms bonded directly to the 3 and 4 positions of the thiophene ring, B is a donor, and A is an acceptor, and groups that include a linear polymer and the chromophore as a pendant group.
 IT 540777-74-02

31A 3NF (Industrial manufacture); NDA (Medicines or additive use); TEM (Technical or engineering material use); PREP (Preparation); USES (Uses) (chromophore); polymers having pendant nonlinear optical chromophores and electro-optic devices made from them
 32I 540777-74-0 CAPLOS

CH Prepared in situ, 2-[5-cyano-4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-(dimethylamino)phenyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furan-3-one] (CA INDEX NAME)
 Double bond geometry as shown.



IT 718637-99-8P 718637-00-4P
 31A 3NF (Industrial manufacture); PREP (Preparation); TEM (Technical or engineering material use); PREP (Preparation); USES (Uses) (polymers having pendant nonlinear optical chromophores and electro-optic devices made from them)
 32I 718637-99-8 CAPLOS

CH Phenyl, 4-ethenyl-, homopolymer, 6-[[4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-cyano-5-(diisopropylamino)propyl]-3-furyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]phenyl]ethynyl]benzoate (BIC1) (CA INDEX NAME)
 CN 3

CH 701235-61-0
 CNF C73 B62 F3 N4 012 82

165 ANWEMER 2 OF 53 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)

CH 3

CH 24979-70-2
 CNF C8 B8 O1a
 CCT FMS

CH 4

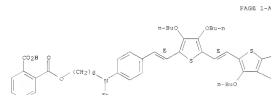
CNN 2628-17-3
 CNF C8 B8 0



32I 718637-00-4 CAPLOS
 CH Phenyl, 4-ethenyl-, homopolymer, 6-[[4-[(1E)-2-[5-[(1E)-2-[5-[(1E)-2-[3-[[3,4-bis(4-[(trifluoromethyl)oxy]benzoyl]oxy]propyl]-3-furyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]phenyl]ethynyl]benzoate (BIC1) 1,2-benzenedioxybenzoate 4-[(trifluoromethyl)oxy]benzoate (BIC1) (CA INDEX NAME)
 CN 1

CH 701235-63-4
 CNF C8 B62 F3 N4 015 82

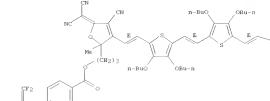
Double bond geometry as shown.



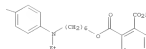
PAGE 1-A

165 ANWEMER 2 OF 53 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)
 Double bond geometry as shown.

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PAGE 1-B



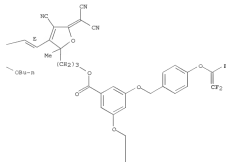
CH 2

CHN 134153-66-9
 CNF C9 B5 F3 03



165 ANWEMER 2 OF 53 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)

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CH 2

CHN 134153-66-9
 CNF C9 B5 F3 03



145 ANSWER 2 OF 53 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)

CH 3
CH 24979-70-2
CMF [CS 89 0]x
CCS FMS

CH 4

CH 2428-17-3
CMF CS 89 0



IT 540777-76-2P 540777-77-3P 540777-78-4P
701235-53-4P 701235-58-4P 701235-63-2P
701235-63-4P 701235-58-4P 701235-63-2P
R₁ R₂ R₃ (Industrial manufacture); RCT (Reactant); PREP (Preparation);

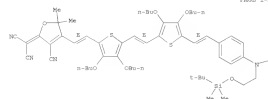
ZACT

[Reactant or reagent]
[polymers having pendant nonlinear optical chromophores and electro-optic devices made from them]

RI 540777-76-2 CAPLUS
CH Preparednitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[5-[(1E)-2-[4-[[bis[2-[[[1,1-dimethyl-2-oxo-1,2,3,4-tetrahydropyridine-5-ylidene]amino]phenyl]ethyl]-3,4-dimethoxy-2-thienyl]ethyl]-5,6-dimethoxy-2-thienyl]ethyl]-3-cyano-5,5-dimethyl-2-[1E]-furyl]idene]- (CA INDEX NAME)

Double bond geometry as shown.

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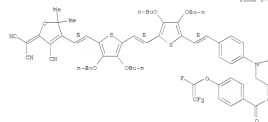


145 ANSWER 2 OF 53 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)

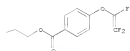
RI 540777-78-4 CAPLUS
CH Benzoic acid, 4-[[[1,1,1-trifluoroethyl]oxy]-, [4-[(1E)-2-[3,4-dimethoxy-5-[(1E)-2-[5,6-dimethoxy-2-[4-[[bis[2-[[[1,1-dimethyl-2-oxo-1,2,3,4-tetrahydropyridine-5-ylidene]amino]phenyl]ethyl]-3,4-dimethoxy-2-thienyl]ethyl]-5,6-dimethoxy-2-thienyl]ethyl]-3-cyano-5,5-dimethyl-2-[1E]-furyl]idene]- (CA INDEX NAME)

Double bond geometry as shown.

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PAGE 1-B



RI 701235-53-0 CAPLUS
CH Preparednitrile, 2-[3-cyano-4-[(1E)-2-[3,4-dimethoxy-5-[(1E)-2-[3,4-dimethoxy-5-[(1E)-2-[4-[[bis[2-[[[1,1-dimethyl-2-oxo-1,2,3,4-tetrahydropyridine-5-ylidene]amino]phenyl]ethyl]-3,4-dimethoxy-2-thienyl]ethyl]-5,6-dimethoxy-2-thienyl]ethyl]-3-cyano-5,5-dimethyl-2-[1E]-furyl]idene]- (CA INDEX NAME)

Double bond geometry as shown.

145 ANSWER 2 OF 53 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)

PAGE 1-B

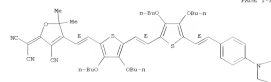


RI 540777-77-3 CAPLUS

CH Preparednitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[5-[(1E)-2-[4-[[bis[2-[[[1,1-dimethyl-2-oxo-1,2,3,4-tetrahydropyridine-5-ylidene]amino]phenyl]ethyl]-3,4-dimethoxy-2-thienyl]ethyl]-5,6-dimethoxy-2-thienyl]ethyl]-3-cyano-5,5-dimethyl-2-[1E]-furyl]idene]- (CA INDEX NAME)

Double bond geometry as shown.

PAGE 1-A

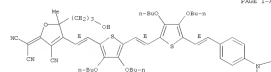


PAGE 1-B



145 ANSWER 2 OF 53 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)

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PAGE 1-B

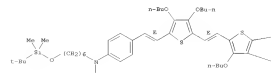


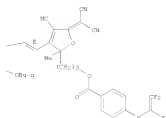
RI 701235-53-2 CAPLUS

CH Benzoic acid, 4-[[[1,1,1-trifluoroethyl]oxy]-, 2-[4-cyano-3-[(1E)-2-[3,4-dimethoxy-5-[(1E)-2-[3,4-dimethoxy-5-[(1E)-2-[4-[[bis[2-[[[1,1-dimethyl-2-oxo-1,2,3,4-tetrahydropyridine-5-ylidene]amino]phenyl]ethyl]-3,4-dimethoxy-2-thienyl]ethyl]-5,6-dimethoxy-2-thienyl]ethyl]-3-cyano-5,5-dimethyl-2-[1E]-furyl]idene]- (CA INDEX NAME)

Double bond geometry as shown.

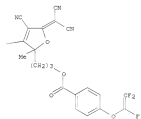
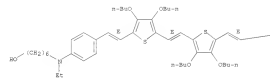
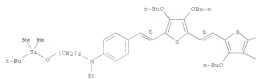
PAGE 1-A





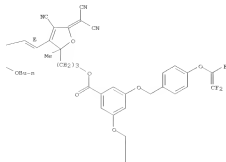
301 761235-55-4 CAJGOS
 CH Benzoic acid, 3,3-bis[4-[[2,2,2-trifluoroethyl]oxy]phenyl]methoxy-,
 4-(4-quinoyl)-3,5-bis[4-[[2,2,2-trifluoroethyl]oxy]phenyl]-, 4-
 [[6-[[1,1,2-dimethyl-2-ethoxy-2-ethyl-2-oxo-1,2,3,4-tetrahydro-2H-
 pyrimidin-4-yl]ethoxy]phenyl]ethoxy]phenyl]ethoxy]phenyl]ethoxy]-
 2-thienyl]ethoxy]-2-ethoxy]phenyl]ethoxy]phenyl]ethoxy]-2,5-di-
 hydro-2-furanyl]propyl ester (CA INDEX NAME)

Double bond geometry as shown.



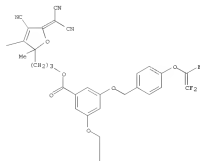
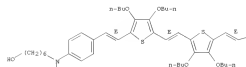
701235-59-8 CAPS/US
 Benzoic acid, 3,5-bis[[4-[(2,2,2-trifluoroethyl)oxy]phenyl]methoxy]-,
 3-(4-cyano-2-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-
 [ethyl(4-hydroxyhexyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-2-
 thienyl]ethenyl]-5-(dicyanoethyl)ene)-2,5-dihydro-2-methyl-2-
 furanyl]propyl ester (CA INDEX NAME)

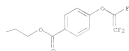
Double bond geometry as shown.



701235-57-6 CAS#US
Benzoic acid, 4-[[3,2,2-trifluoroethenyl]oxy]-,
3-[4-cyano-3-[(E)-2-[3,4-dibutoxy-5-[(E)-2-[3,4-dibutoxy-5-[(E)-2-[4-
[ethyl(6-hydroxyhexyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-2-
thienyl]ethenyl]-5-(dicyanoethylene)-2,5-dihydro-2-methyl-2-
furyl]propyl ester (CA INDEX NAME)

Double bond geometry as shown.





HN 701235-61-9 CAPLUS
 CN 1,2-bis(4-ethoxyphenyl)ethane-1,2-diol, 6-[[4-[(1E)-2-[7,4-dibutoxy-5-[(1E)-2-[7,4-dibutoxy-5-[(1E)-2-[4-cyano-5-(diacyanomethylidene)-2,5-dihydro-2-methyl-2-[3-[[4-[(trifluoroethoxy)methyl]oxy]propyl]-3-furyl]ethyl]-2-thienyl]ethyl]-2-thienyl]ethyl]phenyl]ethyl]amino]benzyl ester, polymer with 4-ethoxyphenyl 4-[(trifluoroethoxy)oxycarbonyl]benzoate (PC1) (CA INDEX NAME)

CN 1

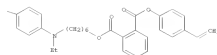
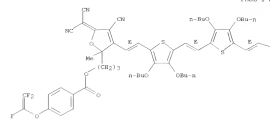
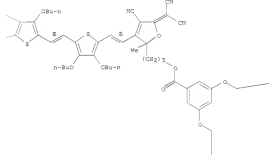
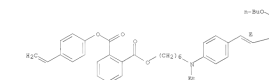
CN 701235-66-7
 CNF C17 H11 F3 O5



CN 2

CN 701235-61-9
 CNF C17 H11 F3 N4 O12 S2

Double bond geometry as shown.



HN 701235-70-3 CAPLUS
 CN 1,2-bis(4-ethoxyphenyl)ethane-1,2-diol, 6-[[4-[(1E)-2-[5-[(1E)-2-[5-[(1E)-2-[2-[3-[[3,5-bis[[4-[(trifluoroethoxy)phenyl]methoxy]benzoyl]oxy]propyl]-4-cyano-5-(diacyanomethylidene)-2,5-dihydro-2-methyl-2-[furyl]ethyl]-3,4-dibutoxy-2-(thienyl)ethyl]-2-thienyl]ethyl]phenyl]ethyl]amino]benzyl ester, polymer with 4-ethoxyphenyl 4-[(trifluoroethoxy)oxycarbonyl]benzoate (PC1) (CA INDEX NAME)

CN 1

CN 701235-69-0
 CNF C17 H11 F3 N4 O12 S2

Double bond geometry as shown.



CN 2

CN 701235-66-7
 CNF C17 H11 F3 O5

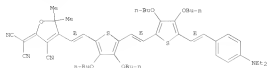


IT 540777-74-0P 540777-74-2P 540777-77-3P
 701235-51-0P 701235-63-2P 701235-55-4P
 701235-57-4P 701235-59-8P 701235-61-2P
 701235-61-4P
 RI: RCT (Reactant); SYN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (second order nonlinear optical chromophores, polymers containing same, and electro-optic devices therefrom)
 HN 540777-74-0 CAPLUS
 CN Prepared in nitrobenzene, 2-[3-cyano-4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-

10560670.trn

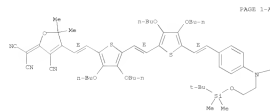
165 ANSWER 3 OF 53 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)
diutoxy-5-[(1E)-2-[(4-{[dimethylamino]phenyl}ethenyl]-2-thienyl]ethenyl]-2-
thienyl]ethenyl]-5,5-dimethyl-2-(5H)-furan-2-ylidene)- (CA INDEX NAME)

Double bond geometry as shown.



701 546777-77-3 CAPLUS
CN Propenedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-{[dimethylamino]phenyl}ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-3,4-dimethoxy-5-(3-oxo-5,5-dimethyl-2-(5H)-furan-2-ylidene)- (CA INDEX NAME)

Double bond geometry as shown.

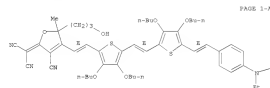


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165 ANSWER 3 OF 53 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)

701 701235-55-0 CAPLUS
CN Propenedinitrile, 2-[4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-{[4-[(1,1-dimethylethyl)dimethylsilyloxy]heptyl]ethylanino]phenyl]ethenyl]-2-thienyl]ethenyl]-5-(3-hydroxypropyl)-5-methyl-2-(5H)-furan-2-ylidene)- (CA INDEX NAME)

Double bond geometry as shown.



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701 701235-55-0 CAPLUS
CN Benzoic acid, 4-[[[1,2,2-trifluoroethoxy]heptyl]-2-[4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-{[4-[(1,1-dimethylethyl)dimethylsilyloxy]heptyl]ethylanino]phenyl]ethenyl]-2-thienyl]ethenyl]-5-(3-hydroxypropyl)-5-methyl-2-(5H)-furan-2-ylidene)- (CA INDEX NAME)

Double bond geometry as shown.

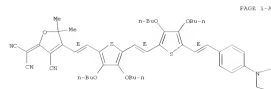
165 ANSWER 3 OF 53 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)

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701 546777-77-3 CAPLUS
CN Propenedinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-{[4-[(1,1-dimethylethyl)dimethylsilyloxy]heptyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-3-oxo-5,5-dimethyl-2-(5H)-furan-2-ylidene)- (CA INDEX NAME)

Double bond geometry as shown.



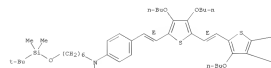
PAGE 1-A

PAGE 1-B

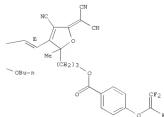


165 ANSWER 3 OF 53 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)

PAGE 1-A

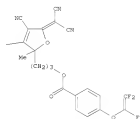
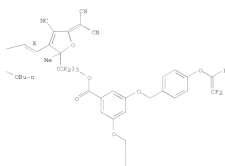
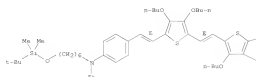


PAGE 1-B



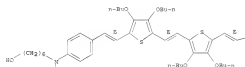
701 701235-55-0 CAPLUS
CN Benzoic acid, 4-[[[1,2,2-trifluoroethoxy]heptyl]ethoxy]-3-[4-oxo-3-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-{[4-[(1,1-dimethylethyl)dimethylsilyloxy]heptyl]ethylanino]phenyl]ethenyl]-2-thienyl]ethenyl]-2-thienyl]ethenyl]-5-(3-hydroxypropyl)-5-methyl-2-(5H)-furan-2-ylidene)- (CA INDEX NAME)

Double bond geometry as shown.



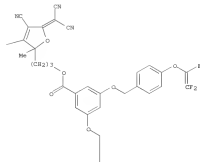
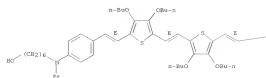
HN 701235-59-8 CAPLUS
CN Benzoic acid, 4-[[1,2,3-trifluoroethoxy]phenyl]methoxy]-, 3-[4-cyano-2-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-ethoxy-2-hydroxyphenyl]amino]phenyl]ethyl]-2-thienyl]ethyl]-2-thienyl]ethoxy]-5-[(1E)-2-hydroxy-2-methyl-2-furyl]propyl ester (CA INDEX NAME)

Double bond geometry as shown.



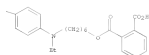
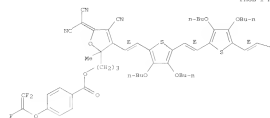
HN 701235-57-6 CAPLUS
CN Benzoic acid, 4-[[1,2,3-trifluoroethoxy]phenyl]methoxy]-, 3-[4-cyano-2-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-ethoxy-2-hydroxyphenyl]amino]phenyl]ethyl]-2-thienyl]ethyl]-2-thienyl]ethoxy]-5-[(1E)-2-hydroxy-2-methyl-2-furyl]propyl ester (CA INDEX NAME)

Double bond geometry as shown.



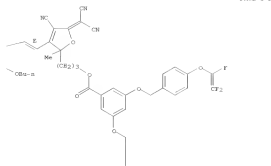
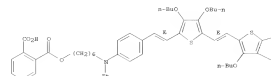
HN 701235-61-2 CAPLUS
CN 1,2-Benzenedithiobenzic acid, 1-[6-[[4-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[3,4-dibutoxy-5-[(1E)-2-[4-cyano-3-ethoxyphenyl]amino]phenyl]ethyl]-2-thienyl]ethyl]-2-thienyl]ethoxy]-5-[(1E)-2-hydroxy-2-methyl-2-furyl]propyl]ester (CA INDEX NAME)

Double bond geometry as shown.



20 701215-61-4 CAPLUS
 CN 1,2-bis(methoxycarbonyl)acetic acid,
 1-[6-[[4-[[1E]-2-[5-[[1E]-2-[5-[[1E]-2-[2-[3-
 [[7,5-bis[[4-[[1,2,2-trifluoroethoxy]oxy]phenyl]methoxy]oxy]oxy]oxy]
 [[4-cyano-5-[[di(methoxymethyl)-2,5-dihydro-2-methyl-3-furyl]ethenyl]-
 3,4-dioxo-2-thienyl]ethenyl]-3,4-dioxo-2-
 thienyl]ethenyl]phenyl]ethyl]amino]hexyl] ester (CA INDEX NAME)

Double bond geometry as shown.



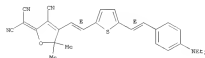
165 ANSWER 4 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
 0001970715 Document No. 141164293 Simple reflection measurement of
 nonlinear optical activity using silicon as an electrode. Haller, Marlene
 A.; Lavenex, Rysz; Clou, Olivier; Sherwood, Travis; Salton, Loretta; Jen,
 Alex K. (Department of Materials Science and Engineering, Univ. of
 Washington, Seattle, WA, 98195, USA). Proceedings of SPIE-The
 International Society for Optical Engineering, 5313:Linear and Nonlinear
 Optics of Organic Materials XII, 226-231 (English) 2007.
 CODEN: PRSDM. ISBN: 0277-786X. Publisher: SPIE-The International
 Society for Optical Engineering.

AB Future generations of photonic devices which incorporate poled organic
 nonlinear optical materials may be aided by, or require the use of
 non-traditional electrodes. This report details the integration of highly
 doped Si as one of the poled/modulating electrodes in the simple
 reflection type experiment for determination of nonlinear optical
 activity in a
 guest-host polymer system. The measurements illustrate that the behavior
 of doped-Si and the traditional In Sn oxide (ITO) electrodes are
 analogous. A number of organic chromophore guests were studied as well
 as
 multiple polymer hosts. Results demonstrate both successful poled
 and subsequent modulation of NLO materials, including the calcn. of r_{33}
 values
 comparable to those achieved using a standard ITO electrode.

17 725612-75-2
 RI: PRP (Properties)
 (single reflection measurement of nonlinear optical activity using
 silicon as electrode)

20 725612-75-3 CAPLUS
 CN Propenemimide, 2-[3-cyano-4-[[1E]-2-[5-[[1E]-2-[4-
 (diethylamino)phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-
 furan-2-ylidene]- (CA INDEX NAME)

Double bond geometry as shown.



163 ANSWER 5 OF 53 CAPLUS COPYRIGHT 2010 ACS on STM

2003:935435 Document No. 141:173276 Novel fluorophores for single-molecule imaging; Villieta, Katherine A.; Gutroverkhova, Giana; Ima, Stephan;

Meng, Ting; Robert, J.; Nozner, William E. (Department of Chemistry, Stanford Univ., Stanford, CA, USA). Proceedings of SPIE-The International Society for Optical Engineering, 5222 (Microcrystals, and Organic and Hybrid

Nanocrystals), 150-157 (English) 2007. CODEN: PROEEO. ISSN: 0277-786X. Publisher: SPIE-The International Society for Optical Engineering.

AB A new class of fluorophores has been identified that can be imaged at the single-mol. level and offer addnl. beneficial properties such as a significant ground state dipole moment, moderate hyperpolarizability, and sensitivity to local rigidity. These mols. contain an amine donor and a diarylamidohydrofuran (DCHDF) acceptor linked by a conjugated unit

[between, thiophene, silole, styrene, etc.] and were originally designed to deliver both high polarizability anisotropy and dipole moment as nonlinear optical

chromophores for photorefractive applications. Surprisingly, we have found that these mols. are also well-suited for single-mol. fluorescence imaging in polymers and other reasonably rigid environments. We report the bulk (ensemble) and single-mol. photophys. properties measured for

11X dyes in this new class of single-mol. reporters, with absorption maxima ranging from 402 to 514 nm.

1T 506195-25-4

RIx AMO [Analytical reagent use]; FRP [Properties]; ANOT [Analytical study]; WSEI [Uses] [Fluorophore based on diarylamidohydrofuran acceptors paired with amine donors for single-mol. imaging]

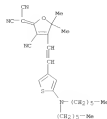
2H 506195-25-4 CAPLUS

CH Prepared initially,

2-[3-cyano-4-[2-[3-(diisopropylamino)-3-thienyl]ethenyl]-5,5-dimethyl-2(1H)-furan]idene]- (CA INDEX NAME)

165 ANSWER 5 OF 53 CAPLUS COPYRIGHT 2010 ACS on STM

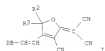
(Continued)



163 ANSWER 6 OF 53 CAPLUS COPYRIGHT 2010 ACS on STM

2003:935435 Document No. 139:1338790 Low loss electro-optic polymers and devices made therefrom; He, Mingliang; Shustach, Paul J.; Wang, Jiaqiao (USA, U.S. Pat. Appl. Publ. US 20050201429 A1 20051009, 21 pp [English] - CODEN: USXXCO. APPLICATIO: US 2002-136869 20020430.

GI



AB An electro-optic chromophore is described comprising a compound having a general formula 1, wherein D = an electron donor having one or a plurality of terminally pendant, polymerizable cyclic ether or cyclic thioether groups; Z = at least one bivalent aromatic ring or deriva.; and R2 and

R3 = (each, independently), H, or a (un)substituted C1-C10 alkyl, a (un)substituted C2-C10 alkenyl, a (un)substituted aryl, a (un)substituted alkylaryl, a (un)substituted carbocycle, a (un)substituted heterocycle,

or a (un)substituted cyclohexyl; or R2 and R3 together form a (substituted) ring structure. The chromophore may have nonlinear optical property and may be photoreversible. An optical device using the chromophore is also described. A method of fabricating an optical or electro-optic structure containing a photorefractive high μ P chromophore layer is also described.

1T 524459-10-49

RIx IMF [Industrial manufacture]; RCT [Reagent]; FRP [Preparation];

3ACT [Reagent or reagent]

(chromophore; low loss electro-optic polymers and devices using them)

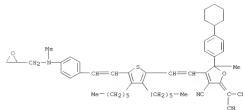
2H 524459-10-4 CAPLUS

CH Prepared initially,

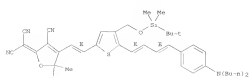
2-[3-cyano-4-[4-(4-cyano-2-phenyl-1-ethenyl)-4-[2-[2,6-diisopropyl-5-[2-[4-[methoxy(methyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5-methyl-2(1H)-furan]idene]- (CA INDEX NAME)

165 ANSWER 6 OF 53 CAPLUS COPYRIGHT 2010 ACS on STM

(Continued)



145 NUMBER 5 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



145 ANNEER 9 OF 55 CAPLIPS COPYRIGHT 2010 ACS on STN
2007163272 Document No. 140:241934 Effects of alkyl spacer group length on
via-NIR absorption behavior in PFC-like quasi-host CO polymers. Barto,
Richard R., Jr.; Bedworth, Peter V.; Epstein, Joseph A.; Ermer, Susan P.;
Taylor, Rebecca E.; Frank, Curtis W. (Lockheed Martin Space Systems Co.,
USA). Proceedings of SPIE-The International Society for Optical
Engineering, 6993 Organic Photonic Materials and Devices V, 578-588
2008. 2008. CODEN: OPTE-D. ISSN: 0277-7866. Publisher:
SPIE-The International Society for Optical Engineering.

Special absorption behavior of FTC-like dyes of varying shape incorporated into amorphous polycarbonate (APC) were characterized by photothermal deflection spectroscopy. Previous Monte Carlo analysis by G. J. Moore and P. J. Flory predicted that the random distribution of nonlinear optical susceptibility on the cholesteric wavelength light aspect ratio in elec. field-poled films. The dependence arises from London dispersion forces between the polymer and the dye. The photothermal deflection absorption characteristics of the composite both by changing the local polarity of the medium and through dipole interactions. It is asserted that these interactions will play a role in the absorption

of unpolished films as well. Of particular interest are the spectral characteristics of the red edge of the main dye electronic absorption peak on the film surface. The red edge has been assigned to the presence of fundamental C-C stretching and bending modes. The spectral structure between these two regions can be influenced by inter- and intramolecular interactions between adjacent molecules in the polymer matrix. In addition, we will describe at key transitions found in optical spectra prepared from these materials after heat treatment at various temperatures (80–250 °C). These heating treatments change sample lengths, ranging from 8% to 20%, which are attached to

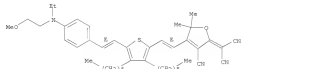
an FT-IR or Raman spectroscopy. MFCO-409 was characterized by a combination of photothermal deflection spectroscopy (PDS) and UV-visible spectroscopy to examine the effects of the mol. environment on near-IR loss at 1070 nm,

1300 nm and 1550 nm.

673796-70 676254-54 676254-54-5
676254-54

FT-IR OOS (occurrence, unclassified); IRF (Properties); OOS (occurrence)

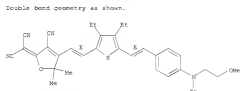
165 ANSWER 9 OF 53 CHAPTER COPYRIGHT 2010 ACB co. 8799 (Cont. from p. 8798)



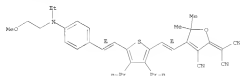
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720  676256-53-4  CAPLOS
CN  Propazanedinitrile,
2-[3-oxazo-4-[(1E)-2-[3,4-diethyl-5-[(1E)-2-[4-[ethyl(2-
methoxyethyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-
furan]idene]-1-CA INDEX NAME)

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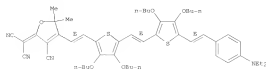


676256-54-3 CAPLUS
Propazodinitrale, 2-[3-cyano-4-[(1E)-2-[5-[(1E)-2-[4-[ethyl(2-methoxyethoxy)amino]phenyl]ethenyl]-3,4-dipropyl-2-thienyl]ethenyl]-5,5-dimethyl-1,3,4,5-tetrahydropyridin-2-yl]propanoate (C₃₇H₄₆N₂O₄S)



303 676256-55-6 CAPLOS
 C2 Propylenedinitrile,
 2-[3-cyano-4-[(1E)-2-[3,4-dibutyl-5-[(1E)-2-[4-ethenyl-2-
 methoxyethyl]amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2-(5H)-
 furan-1-ylidene]-1-CA INDEX NAME

165 ANSWER 10 OF 53 CAPLOS COPYRIGHT 2010 ACS ON STN (Continued)

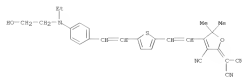


165 ANSWER 11 OF 53 CAPLOS COPYRIGHT 2010 ACS ON STN

2005:421608 Document No. 139:114950 Synthesis and properties of chiral helical chirophore-functionalized poly(biarylene)s for second-order nonlinear optical applications. Kozulberg, G.; Soudry, R.; Verbin, T.; Thier, P.; Percec, V.; Andrey, S.; Celent, L. (Laboratory of Macromolecular and Physical Organic Chemistry, Katholische Universiteit Leuven, Herestraat, B-3001, Belg.). Polymer, 46(14), 2785-2794 (English) 2005. CODEN: POLYAN. ISSN: 0032-3861. Publisher: Elsevier Science Ltd..

AB Chiral, helical, nonlinear optical poly(biarylene)s were prepared by covalent bonding of chirophores to the backbone of poly(biarylene)s via a Mitsunobu reaction. This was achieved in a two-step reaction, with the formation of a precursor polymer by a Suzuki coupling reaction, which was afterwards functionalized with chirophores. It was tried to achieve a chiral ordering of the chirophores by attaching them to a chiral, helical polymer backbone. Foiled films of the polymers were measured for their second-harmonic generation effect and showed nonresonant nonlinear susceptibilities ($\chi^{(2)}$) up to 10.6 pm/V.

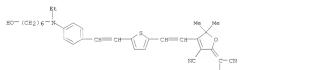
IT 586972-36-3P, reaction product with chiral poly(biarylene)s
586972-37-4P, reaction product with chiral poly(biarylene)s
RI PEP (Preparation); SPI (Synthetic preparation); PEP (Preparation) (chiral helical chirophore functionalized poly(biarylene)s synthesis)
RI 586972-36-3 CAPLOS
CN Propandinitrile, 2-[3-cyano-4-[2-[5-[2-[4-[ethyl(2-hydroxyethyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(1H)-furan-2-ylidene]- (CA INDEX NAME)



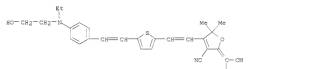
RI 586972-37-4 CAPLOS

CN Propandinitrile, 2-[3-cyano-4-[2-[5-[2-[4-[ethyl(2-hydroxyethyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(1H)-furan-2-ylidene]- (CA INDEX NAME)

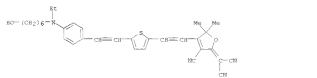
165 ANSWER 11 OF 53 CAPLOS COPYRIGHT 2010 ACS ON STN (Continued)



IT 586972-36-3P 586972-37-4P
RI PEP (Preparation); SPI (Synthetic preparation); PEP (Preparation); NACT (Nucleation or reaction) (chirophore) chiral helical chirophore-functionalized poly(biarylene)s synthesis)
RI 586972-36-3 CAPLOS
CN Propandinitrile, 2-[3-cyano-4-[2-[5-[2-[4-[ethyl(2-hydroxyethyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(1H)-furan-2-ylidene]- (CA INDEX NAME)



RI 586972-37-4 CAPLOS
CN Propandinitrile, 2-[3-cyano-4-[2-[5-[2-[4-[ethyl(2-hydroxyethyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(1H)-furan-2-ylidene]- (CA INDEX NAME)



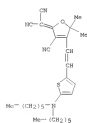
165 ANSWER 12 OF 53 CAPLOS COPYRIGHT 2010 ACS ON STN

2005:402555 Document No. 139:154640 High-performance photoactive organic glass with near-infrared sensitivity. Ovtrochikova, Oksana; Nosner, V. R.; He, Meng; Tsing, Robert J. (Department of Chemistry, Stanford University, Stanford, CA, 94305-5080, USA). Applied Physics Letters, 82(12), 2622-2624 (English) 2003. CODEN: APPLAB. ISSN: 0003-6951. Publisher: American Institute of Physics.

AB A high-performance organic glass mixture comprised of two diphenylmethylenedihydrofuran derivs. is presented. A pronounced two-beam coupling effect was observed at a wavelength of 830 nm in an unsaturated composition. Sensitization with a dye of 830 nm in an unsaturated (2,4,7-trinitro-2-fluorocyclohexa-1,4-diene) (TFND) led to a significant increase in the two-beam coupling gain coefficient, reaching a net value of approx. 370 cm-1 at an elec. field of 45 V/cm at 14 THz, and resulted in an improvement in photoactive speed.

IT 561291-76-7, 78-DCDHF 6V
RI PEP (Preparation)
RI 561291-76-7 CAPLOS
CN Propandinitrile, 2-[3-cyano-4-[2-[5-[2-[4-[ethyl(2-hydroxyethyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(1H)-furan-2-ylidene]- (CA INDEX NAME)

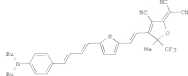
AB A high-performance photoactive organic glass with near-IR sensitivity and its properties.
RI 561291-76-7 CAPLOS
CN Propandinitrile, 2-[3-cyano-4-[2-[5-[2-[4-[ethyl(2-hydroxyethyl)amino]phenyl]ethenyl]-2-thienyl]ethenyl]-5,5-dimethyl-2(1H)-furan-2-ylidene]- (CA INDEX NAME)



165 ANNEK 13 OF 53 CAPLUS COPYRIGHT 2010 ACS on STM
2001:135906 Document No. 139:1223320 Focused microwave-assisted synthesis

of
2,5-dihydrofuran derivatives as electron acceptors for highly efficient
nonlinear optical chromophores. Liu, Beny Raller, Marine A.; Ma, Hong
Salon, Jia-Yu; Tang, Rui-Ren; Sun, Alex M.-Y. Department of Materials
Science and Engineering, University of Washington, Seattle, WA,
98195-1350, USA; Advanced Materials (Helmholtz Zentrum), 51708,
601-607 (Heidelberg) 2003. CODEN: ADVMAH. ISSN: 0975-9849. OTHER
SOURCE: CSDIAC7 1794727992. Publisher: Wiley-VCH Verlag GmbH & Co.
KGaA.

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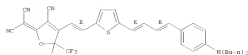
AB A very diversified family of 2,5-dihydrofuran deriva., e.g., I, was
prepared
as a new class of tunable electron acceptors using single-mode focused
microwave irradiation. A high poling efficiency and very large $\chi^{(3)}$
values (228
and 116 pm V⁻¹ at 1.3 μ m) were demonstrated using I in polymethyl
methacrylate and a high-temperature polypyrrolone (PQ-100). An excellent
long-term temporal stability was demonstrated in the PQ guest/host
system.

IT 613237-39-3P 613237-40-4P 613237-41-5P
RI: NMR (Modifier or additive use); PEP (Properties); SPH (Synthetic
Preparation); PPEP (Preparation); PDES (Data)
(focused microwave-assisted synthesis of 2,5-dihydrofuran deriva. as
electron acceptors for nonlinear optical chromophores).

RI 613237-39-1 CAPLUS
CI Propenedinitrile, 2-[3-cyano-6-[(1E)-2-[5-[(1E,3E)-4-[4-
(diethylamino)phenyl]-3,5-butenylidene-1-yl]-2-thienyl]ethenyl]-5-methyl-5-
trifluoromethyl-2(5H)-furylidenes]-(CA INDEX NAME)

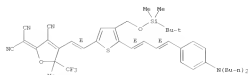
Double bond geometry as shown.

165 ANNEK 13 OF 53 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)



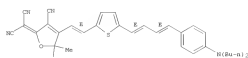
RI 613237-40-4 CAPLUS
CI Propenedinitrile, 2-[3-cyano-6-[(1E)-2-[5-[(1E,3E)-4-[4-
(diethylamino)phenyl]-3,5-butenylidene-1-yl]-2-thienyl]ethenyl]-5-methyl-5-
trifluoromethyl-2(5H)-furylidenes]-(CA INDEX NAME)

Double bond geometry as shown.



RI 613237-41-5 CAPLUS
CI Propenedinitrile, 2-[3-cyano-6-[(1E)-2-[5-[(1E,3E)-4-[4-
(diethylamino)phenyl]-3,5-butenylidene-1-yl]-2-thienyl]ethenyl]-5,5-dimethyl-
2(5H)-furylidenes]-(CA INDEX NAME)

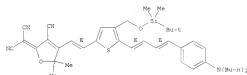
Double bond geometry as shown.



IT 613237-42-4P
RI: PEP (Properties); SPH (Synthetic preparation); PPEP (Preparation)
(focused microwave-assisted synthesis of 2,5-dihydrofuran deriva. as
electron acceptors for nonlinear optical chromophores)
RI 613237-42-6 CAPLUS
CI Propenedinitrile, 2-[3-cyano-6-[(1E)-2-[5-[(1E,3E)-4-[4-
(diethylamino)phenyl]-3,5-butenylidene-1-yl]-2-thienyl]ethenyl]-5,5-dimethyl-
2(5H)-furylidenes]-(CA INDEX NAME)

165 ANNEK 13 OF 53 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)
2001:135906 Document No. 139:1223320 Focused microwave-assisted synthesis
of 2,5-dihydrofuran derivatives as electron acceptors for highly efficient
nonlinear optical chromophores. Liu, Beny Raller, Marine A.; Ma, Hong
Salon, Jia-Yu; Tang, Rui-Ren; Sun, Alex M.-Y. Department of Materials
Science and Engineering, University of Washington, Seattle, WA,
98195-1350, USA; Advanced Materials (Helmholtz Zentrum), 51708,
601-607 (Heidelberg) 2003. CODEN: ADVMAH. ISSN: 0975-9849. OTHER
SOURCE: CSDIAC7 1794727992. Publisher: Wiley-VCH Verlag GmbH & Co.
KGaA.

Double bond geometry as shown.



165 ANNEK 14 OF 53 CAPLUS COPYRIGHT 2010 ACS on STM
2001:135906 Document No. 139:1223320 Focused microwave-assisted synthesis
of 2,5-dihydrofuran derivatives as electron acceptors for highly efficient
nonlinear optical chromophores. Liu, Beny Raller, Marine A.; Ma, Hong
Salon, Jia-Yu; Tang, Rui-Ren; Sun, Alex M.-Y. Department of Materials
Science and Engineering, University of Washington, Seattle, WA,
98195-1350, USA; Advanced Materials (Helmholtz Zentrum), 51708,
601-607 (Heidelberg) 2003. CODEN: ADVMAH. ISSN: 0975-9849. OTHER
SOURCE: CSDIAC7 1794727992. Publisher: Wiley-VCH Verlag GmbH & Co.
KGaA.

IT 613237-42-4P
RI: PEP (Properties); SPH (Synthetic preparation); PPEP (Preparation)
(focused microwave-assisted synthesis of 2,5-dihydrofuran deriva. as
electron acceptors for nonlinear optical chromophores)
RI 613237-42-6 CAPLUS
CI Propenedinitrile, 2-[3-cyano-6-[(1E)-2-[5-[(1E,3E)-4-[4-
(diethylamino)phenyl]-3,5-butenylidene-1-yl]-2-thienyl]ethenyl]-5,5-dimethyl-
2(5H)-furylidenes]-(CA INDEX NAME)

AB Novel compounds and synthetic methods for forming nonlinear optic polymers,
which may be incorporated into multiple light-based devices, are
disclosed. These compounds include crosslinkable chromophoric monomers

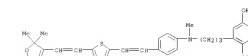
units

that incorporate nonlinear optical chromophores, linking monomers that may
be used to link chromophoric monomers, and polymers made from
crosslinkable chromophoric monomers or chromophoric monomers in
combination with linking monomers. The polymers can exhibit high thermal
stability, which is believed to arise from their covalently bonded
chromophore structure. In one aspect, linking monomers are disclosed
that can be crosslinked.

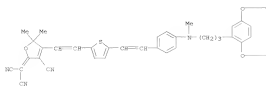
IT 613237-42-7P
RI: IMP (Industrial manufacturing); PEP (Properties); TEN (Technical or
engineered material use); PPEP (Preparation); DES (Data)
(monomer); synthesis of crosslinkable monomers for novel nonlinear
optical polymers)

RI 613237-42-1 CAPLUS
CI Propenedinitrile, 2-[3-cyano-6-[(1E)-2-[5-[(1E,3E)-4-[4-
(diethylamino)phenyl]-3,5-butenylidene-1-yl]-2-thienyl]ethenyl]-5,5-
dimethyl-2(5H)-furylidenes]-(CA INDEX NAME)

Double bond geometry as shown.



IT 511535-41-8
RI: RCT (Reactant); RACT (Reactant or reagent)
(starting material); synthesis of crosslinkable monomers for novel
nonlinear optical polymers)
RI 511535-41-8 CAPLUS
CI Propenedinitrile, 2-[4-[(2-[5-[(2-[4-[(1,3,5-triaza-7-ylidene-1-yl)-2-thienyl]ethenyl]-3-cyano-6-[(1E)-2-[5-[(1E,3E)-4-[4-
(diethylamino)phenyl]-3,5-butenylidene-1-yl]-2-thienyl]ethenyl]-5,5-
dimethyl-2(5H)-furylidenes]-(CA INDEX NAME)



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37 480403-63-09
   1,1' DMP (Industrial manufacture); PEP (Properties); TIM (Technical or
   engineered material use); PREP (Preparation); USES (Uses)
   Literature of crosslinkable monomers for novel nonlinear optical
   polymers
   CM 3
   CN 480403-63-8 CAPLOS
   CN Benzene oxide
   4,4''-[[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]bis(1,3-
   dihydro-1,3-dioxane-2-isonoide-5,2-diyl)]bis-, polymer with
   [3-cyano-6-(1,3-[2-[[4-[[2,2,2-trifluoro-1-(trifluoromethyl)ethylidene]
   dihydro-1,3-dioxane-2-isonoide-5,2-diyl)ethenyl]-2-thienyl)ethenyl]-5-
   dimethylphenyl)propyl]methylanilino]phenyl]ethenyl]-2-thienyl)ethenyl]-5-
   dimethylphenyl)-5,2-furanylidene]propanedinitrile (PC1) (CA INDEX NAME)
   CM 3
   CN 480403-62-7

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0020172

nonlinear conjugate. include chromophoric monomer units that incorporate nonlinear optical chromophore, linking monomers that may be used to link chromophoric monomers, and polymers made from chromophoric monomers or chromophoric monomers in combination with linking monomers. The polymers are described as having been developed by adding side chains to their covalently bonded chromophore structures. In addition to their crosslinkable chromophore structures, nonlinear optical polymers may be crystallizable.

to further increase the thermal and dipole stability of the polymers.

US 6890037-2003-07-24

EN INF (Industrial manufacturer), FRP (Properties); FRFP (Fabrication)

EN 4890035-03 CAMEX

EN 4890035-03 CAMEX

4,4'-(1,3,5-trisubstituted-1,3,5-trifluoromethyl)ethylene[di]bis(1,3,5-trimethyl-4,6-dicyano-1,3,5-triazine)-2,2'-diyl polymer with

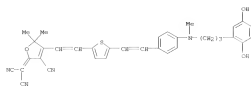
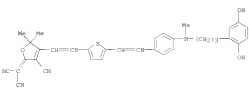
4,4'-(1,3,5-trisubstituted-1,3,5-trifluoromethyl)ethylene[di]bis(1,3,5-trimethyl-4,6-dicyano-1,3,5-triazine)-2,2'-diyl polymer with

dihydroxyethoxy-1-methylamino[ethylene]bis[ethylene]-2-thienyl(ethenyl)-5,5-dimethyl-2,3-difurylindole[propanediene] (SCI) (CA INDEX NAME)

CN 1

CN 4890032-02

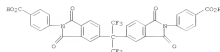
CNF CHA AND HUI G S



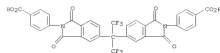
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CN      2
C2H1    133532-50-0
C2H1    C33 H16 P6 N2 O6

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L65 ANSWER 15 OF 53 CAPLOS COPYRIGHT 2010 ACS on STM (Continued)
CMI 133532-50-0
CMT C33 H16 T6 H2 O8



165 ANSWER 16 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
2003:58362 Document No. 138:128790 Novel nonlinear optical polymers
incorporating aniline; Yu, Leping (The University of Chicago, USA). PCT
Int. Appl. No. 2003/007070 21 03/2003 48 pp. (English) (20030321)

[illegible]

Compds. for forming nonlinear optical optical polymers are described by the general formula $X-Y-Z$, $X = [RI-O-CH_2-CH_2-2N]$; R is a labile group; Y is a thiophene oligomer terminated with attached to X via a 1,4-phenylene bridge; Z is an electron-withdrawing group; and Y and Z in combination form a nonlinear optical chromophore. Polymerization of the compds. to

form polymers, the polymers formed from the compds., and electrooptical devices
e.g., phase modulators, light intensity modulators, directional
couplers,
optical switches, optical waveguides, and bulk devices having variable
indices of refraction) among the polymers are also described. The
polymers can exhibit high thermal stability, which is believed to arise
from their covalently bonded chromophore structures.

488803-43-3P
EL: SPN (Synthetic preparation); TEM (Technical or engineered material use); PREP (Preparation); USES (Uses)
(nonlinear optical polymers incorporating amines and electrooptical devices using them)

4,4'-[[2,2,2-trifluoro-3-(trifluoromethyl)ethylidene]bis[3,3-dihydro-3,3-dioxo-2H-isindole-5,2-diyl]]bis-, polymer with

C1=CC=C(C=C1)C(=C2C=CC(=CC=C2)C(=C3C=CC(=CC=C3)C(=C4C=CC(=CC=C4)C(=C5C=CC(=CC=C5)C(=C6C=CC(=CC=C6)C(=C7C=CC(=CC=C7)C(=C8C=CC(=CC=C8)C(=C9C=CC(=CC=C9)C(=C10C=CC(=CC=C10)C(=C11C=CC(=CC=C11)C(=C12C=CC(=CC=C12)C(=C13C=CC(=CC=C13)C(=C14C=CC(=CC=C14)C(=C15C=CC(=CC=C15)C(=C16C=CC(=CC=C16)C(=C17C=CC(=CC=C17)C(=C18C=CC(=CC=C18)C(=C19C=CC(=CC=C19)C(=C20C=CC(=CC=C20)C(=C21C=CC(=CC=C21)C(=C22C=CC(=CC=C22)C(=C23C=CC(=CC=C23)C(=C24C=CC(=CC=C24)C(=C25C=CC(=CC=C25)C(=C26C=CC(=CC=C26)C(=C27C=CC(=CC=C27)C(=C28C=CC(=CC=C28)C(=C29C=CC(=CC=C29)C(=C30C=CC(=CC=C30)C(=C31C=CC(=CC=C31)C(=C32C=CC(=CC=C32)C(=C33C=CC(=CC=C33)C(=C34C=CC(=CC=C34)C(=C35C=CC(=CC=C35)C(=C36C=CC(=CC=C36)C(=C37C=CC(=CC=C37)C(=C38C=CC(=CC=C38)C(=C39C=CC(=CC=C39)C(=C40C=CC(=CC=C40)C(=C41C=CC(=CC=C41)C(=C42C=CC(=CC=C42)C(=C43C=CC(=CC=C43)C(=C44C=CC(=CC=C44)C(=C45C=CC(=CC=C45)C(=C46C=CC(=CC=C46)C(=C47C=CC(=CC=C47)C(=C48C=CC(=CC=C48)C(=C49C=CC(=CC=C49)C(=C50C=CC(=CC=C50)C(=C51C=CC(=CC=C51)C(=C52C=CC(=CC=C52)C(=C53C=CC(=CC=C53)C(=C54C=CC(=CC=C54)C(=C55C=CC(=CC=C55)C(=C56C=CC(=CC=C56)C(=C57C=CC(=CC=C57)C(=C58C=CC(=CC=C58)C(=C59C=CC(=CC=C59)C(=C60C=CC(=CC=C60)C(=C61C=CC(=CC=C61)C(=C62C=CC(=CC=C62)C(=C63C=CC(=CC=C63)C(=C64C=CC(=CC=C64)C(=C65C=CC(=CC=C65)C(=C66C=CC(=CC=C66)C(=C67C=CC(=CC=C67)C(=C68C=CC(=CC=C68)C(=C69C=CC(=CC=C69)C(=C70C=CC(=CC=C70)C(=C71C=CC(=CC=C71)C(=C72C=CC(=CC=C72)C(=C73C=CC(=CC=C73)C(=C74C=CC(=CC=C74)C(=C75C=CC(=CC=C75)C(=C76C=CC(=CC=C76)C(=C77C=CC(=CC=C77)C(=C78C=CC(=CC=C78)C(=C79C=CC(=CC=C79)C(=C80C=CC(=CC=C80)C(=C81C=CC(=CC=C81)C(=C82C=CC(=CC=C82)C(=C83C=CC(=CC=C83)C(=C84C=CC(=CC=C84)C(=C85C=CC(=CC=C85)C(=C86C=CC(=CC=C86)C(=C87C=CC(=CC=C87)C(=C88C=CC(=CC=C88)C(=C89C=CC(=CC=C89)C(=C90C=CC(=CC=C90)C(=C91C=CC(=CC=C91)C(=C92C=CC(=CC=C92)C(=C93C=CC(=CC=C93)C(=C94C=CC(=CC=C94)C(=C95C=CC(=CC=C95)C(=C96C=CC(=CC=C96)C(=C97C=CC(=CC=C97)C(=C98C=CC(=CC=C98)C(=C99C=CC(=CC=C99)C(=C100C=CC(=CC=C100)C(=C101C=CC(=CC=C101)C(=C102C=CC(=CC=C102)C(=C103C=CC(=CC=C103)C(=C104C=CC(=CC=C104)C(=C105C=CC(=CC=C105)C(=C106C=CC(=CC=C106)C(=C107C=CC(=CC=C107)C(=C108C=CC(=CC=C108)C(=C109C=CC(=CC=C109)C(=C110C=CC(=CC=C110)C(=C111C=CC(=CC=C111)C(=C112C=CC(=CC=C112)C(=C113C=CC(=CC=C113)C(=C114C=CC(=CC=C114)C(=C115C=CC(=CC=C115)C(=C116C=CC(=CC=C116)C(=C117C=CC(=CC=C117)C(=C118C=CC(=CC=C118)C(=C119C=CC(=CC=C119)C(=C120C=CC(=CC=C120)C(=C121C=CC(=CC=C121)C(=C122C=CC(=CC=C122)C(=C123C=CC(=CC=C123)C(=C124C=CC(=CC=C124)C(=C125C=CC(=CC=C125)C(=C126C=CC(=CC=C126)C(=C127C=CC(=CC=C127)C(=C128C=CC(=CC=C128)C(=C129C=CC(=CC=C129)C(=C130C=CC(=CC=C130)C(=C131C=CC(=CC=C131)C(=C132C=CC(=CC=C132)C(=C133C=CC(=CC=C133)C(=C134C=CC(=CC=C134)C(=C135C=CC(=CC=C135)C(=C136C=CC(=CC=C136)C(=C137C=CC(=CC=C137)C(=C138C=CC(=CC=C138)C(=C139C=CC(=CC=C139)C(=C140C=CC(=CC=C140)C(=C141C=CC(=CC=C141)C(=C142C=CC(=CC=C142)C(=C143C=CC(=CC=C143)C(=C144C=CC(=CC=C144)C(=C145C=CC(=CC=C145)C(=C146C=CC(=CC=C146)C(=C147C=CC(=CC=C147)C(=C148C=CC(=CC=C148)C(=C149C=CC(=CC=C149)C(=C150C=CC(=CC=C150)C(=C151C=CC(=CC=C151)C(=C152C=CC(=CC=C152)C(=C153C=CC(=CC=C153)C(=C154C=CC(=CC=C154)C(=C155C=CC(=CC=C155)C(=C156C=CC(=CC=C156)C(=C157C=CC(=CC=C157)C(=C158C=CC(=CC=C158)C(=C159C=CC(=CC=C159)C(=C160C=CC(=CC=C160)C(=C161C=CC(=CC=C161)C(=C162C=CC(=CC=C162)C(=C163C=CC(=CC=C163)C(=C164C=CC(=CC=C164)C(=C165C=CC(=CC=C165)C(=C166C=CC(=CC=C166)C(=C167C=CC(=CC=C167)C(=C168C=CC(=CC=C168)C(=C169C=CC(=CC=C169)C(=C170C=CC(=CC=C170)C(=C171C=CC(=CC=C171)C(=C172C=CC(=CC=C172)C(=C173C=CC(=CC=C173)C(=C174C=CC(=CC=C174)C(=C175C=CC(=CC=C175)C(=C176C=CC(=CC=C176)C(=C177C=CC(=CC=C177)C(=C178C=CC(=CC=C178)C(=C179C=CC(=CC=C179)C(=C180C=CC(=CC=C180)C(=C181C=CC(=CC=C181)C(=C182C=CC(=CC=C182)C(=C183C=CC(=CC=C183)C(=C184C=CC(=CC=C184)C(=C185C=CC(=CC=C185)C(=C186C=CC(=CC=C186)C(=C187C=CC(=CC=C187)C(=C188C=CC(=CC=C188)C(=C189C=CC(=CC=C189)C(=C190C=CC(=CC=C190)C(=C191C=CC(=CC=C191)C(=C192C=CC(=CC=C192)C(=C193C=CC(=CC=C193)C(=C194C=CC(=CC=C194)C(=C195C=CC(=CC=C195)C(=C196C=CC(=CC=C196)C(=C197C=CC(=CC=C197)C(=C198C=CC(=CC=C198)C(=C199C=CC(=CC=C199)C(=C200C=CC(=CC=C200)C(=C201C=CC(=CC=C201)C(=C202C=CC(=CC=C202)C(=C203C=CC(=CC=C203)C(=C204C=CC(=CC=C204)C(=C205C=CC(=CC=C205)C(=C206C=CC(=CC=C206)C(=C207C=CC(=CC=C207)C(=C208C=CC(=CC=C208)C(=C209C=CC(=CC=C209)C(=C210C=CC(=CC=C210)C(=C211C=CC(=CC=C211)C(=C212C=CC(=CC=C212)C(=C213C=CC(=CC=C213)C(=C214C=CC(=CC=C214)C(=C215C=CC(=CC=C215)C(=C216C=CC(=CC=C216)C(=C217C=CC(=CC=C217)C(=C218C=CC(=CC=C218)C(=C219C=CC(=CC=C219)C(=C220C=CC(=CC=C220)C(=C221C=CC(=CC=C221)C(=C222C=CC(=CC=C222)C(=C223C=CC(=CC=C223)C(=C224C=CC(=CC=C224)C(=C225C=CC(=CC=C225)C(=C226C=CC(=CC=C226)C(=C227C=CC(=CC=C227)C(=C228C=CC(=CC=C228)C(=C229C=CC(=CC=C229)C(=C230C=CC(=CC=C230)C(=C231C=CC(=CC=C231)C(=C232C=CC(=CC=C232)C(=C233C=CC(=CC=C233)C(=C234C=CC(=CC=C234)C(=C235C=CC(=CC=C235)C(=C236C=CC(=CC=C236)C(=C237C=CC(=CC=C237)C(=C238C=CC(=CC=C238)C(=C239C=CC(=CC=C239)C(=C240C=CC(=CC

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C323 488809-62-7
C324 C34 870 94 03 8

165 ANSWER 17 OF 53 CASJUS COPYRIGHT 2010 ACS on STN
2003:58361 Document No. 138:123275 Nonlinear optical polymers,
compositions,

and their manufacture. YU, Lupang (The University of Chicago, USA). PCT
Int. Appl. No. 2003/01069 A2, 2003/0123, 83 pp. DESIGNATED STATES: AU, BR, CA, CH, CN, DE, DK, ES, FI, FR, GB, GR, HU, IL, IN, JP, KR, MC, NL, NO, NZ, PL, PT, SE, SG, SI, SK, TH, TR, TW, UA, US, VN. (English)
Int. Cl. 7: B23K 1/00, B23K 1/02, B23K 1/04, B23K 1/06, B23K 1/08, B23K 1/10, B23K 1/12, B23K 1/14, B23K 1/16, B23K 1/18, B23K 1/20, B23K 1/22, B23K 1/24, B23K 1/26, B23K 1/28, B23K 1/30, B23K 1/32, B23K 1/34, B23K 1/36, B23K 1/38, B23K 1/40, B23K 1/42, B23K 1/44, B23K 1/46, B23K 1/48, B23K 1/50, B23K 1/52, B23K 1/54, B23K 1/56, B23K 1/58, B23K 1/60, B23K 1/62, B23K 1/64, B23K 1/66, B23K 1/68, B23K 1/70, B23K 1/72, B23K 1/74, B23K 1/76, B23K 1/78, B23K 1/80, B23K 1/82, B23K 1/84, B23K 1/86, B23K 1/88, B23K 1/90, B23K 1/92, B23K 1/94, B23K 1/96, B23K 1/98, B23K 2/00, B23K 2/02, B23K 2/04, B23K 2/06, B23K 2/08, B23K 2/10, B23K 2/12, B23K 2/14, B23K 2/16, B23K 2/18, B23K 2/20, B23K 2/22, B23K 2/24, B23K 2/26, B23K 2/28, B23K 2/30, B23K 2/32, B23K 2/34, B23K 2/36, B23K 2/38, B23K 2/40, B23K 2/42, B23K 2/44, B23K 2/46, B23K 2/48, B23K 2/50, B23K 2/52, B23K 2/54, B23K 2/56, B23K 2/58, B23K 2/60, B23K 2/62, B23K 2/64, B23K 2/66, B23K 2/68, B23K 2/70, B23K 2/72, B23K 2/74, B23K 2/76, B23K 2/78, B23K 2/80, B23K 2/82, B23K 2/84, B23K 2/86, B23K 2/88, B23K 2/90, B23K 2/92, B23K 2/94, B23K 2/96, B23K 2/98, B23K 3/00, B23K 3/02, B23K 3/04, B23K 3/06, B23K 3/08, B23K 3/10, B23K 3/12, B23K 3/14, B23K 3/16, B23K 3/18, B23K 3/20, B23K 3/22, B23K 3/24, B23K 3/26, B23K 3/28, B23K 3/30, B23K 3/32, B23K 3/34, B23K 3/36, B23K 3/38, B23K 3/40, B23K 3/42, B23K 3/44, B23K 3/46, B23K 3/48, B23K 3/50, B23K 3/52, B23K 3/54, B23K 3/56, B23K 3/58, B23K 3/60, B23K 3/62, B23K 3/64, B23K 3/66, B23K 3/68, B23K 3/70, B23K 3/72, B23K 3/74, B23K 3/76, B23K 3/78, B23K 3/80, B23K 3/82, B23K 3/84, B23K 3/86, B23K 3/88, B23K 3/90, B23K 3/92, B23K 3/94, B23K 3/96, B23K 3/98, B23K 4/00, B23K 4/02, B23K 4/04, B23K 4/06, B23K 4/08, B23K 4/10, B23K 4/12, B23K 4/14, B23K 4/16, B23K 4/18, B23K 4/20, B23K 4/22, B23K 4/24, B23K 4/26, B23K 4/28, B23K 4/30, B23K 4/32, B23K 4/34, B23K 4/36, B23K 4/38, B23K 4/40, B23K 4/42, B23K 4/44, B23K 4/46, B23K 4/48, B23K 4/50, B23K 4/52, B23K 4/54, B23K 4/56, B23K 4/58, B23K 4/60, B23K 4/62, B23K 4/64, B23K 4/66, B23K 4/68, B23K 4/70, B23K 4/72, B23K 4/74, B23K 4/76, B23K 4/78, B23K 4/80, B23K 4/82, B23K 4/84, B23K 4/86, B23K 4/88, B23K 4/90, B23K 4/92, B23K 4/94, B23K 4/96, B23K 4/98, B23K 5/00, B23K 5/02, B23K 5/04, B23K 5/06, B23K 5/08, B23K 5/10, B23K 5/12, B23K 5/14, B23K 5/16, B23K 5/18, B23K 5/20, B23K 5/22, B23K 5/24, B23K 5/26, B23K 5/28, B23K 5/30, B23K 5/32, B23K 5/34, B23K 5/36, B23K 5/38, B23K 5/40, B23K 5/42, B23K 5/44, B23K 5/46, B23K 5/48, B23K 5/50, B23K 5/52, B23K 5/54, B23K 5/56, B23K 5/58, B23K 5/60, B23K 5/62, B23K 5/64, B23K 5/66, B23K 5/68, B23K 5/70, B23K 5/72, B23K 5/74, B23K 5/76, B23K 5/78, B23K 5/80, B23K 5/82, B23K 5/84, B23K 5/86, B23K 5/88, B23K 5/90, B23K 5/92, B23K 5/94, B23K 5/96, B23K 5/98, B23K 6/00, B23K 6/02, B23K 6/04, B23K 6/06, B23K 6/08, B23K 6/10, B23K 6/12, B23K 6/14, B23K 6/16, B23K 6/18, B23K 6/20, B23K 6/22, B23K 6/24, B23K 6/26, B23K 6/28, B23K 6/30, B23K 6/32, B23K 6/34, B23K 6/36, B23K 6/38, B23K 6/40, B23K 6/42, B23K 6/44, B23K 6/46, B23K 6/48, B23K 6/50, B23K 6/52, B23K 6/54, B23K 6/56, B23K 6/58, B23K 6/60, B23K 6/62, B23K 6/64, B23K 6/66, B23K 6/68, B23K 6/70, B23K 6/72, B23K 6/74, B23K 6/76, B23K 6/78, B23K 6/80, B23K 6/82, B23K 6/84, B23K 6/86, B23K 6/88, B23K 6/90, B23K 6/92, B23K 6/94, B23K 6/96, B23K 6/98, B23K 7/00, B23K 7/02, B23K 7/04, B23K 7/06, B23K 7/08, B23K 7/10, B23K 7/12, B23K 7/14, B23K 7/16, B23K 7/18, B23K 7/20, B23K 7/22, B23K 7/24, B23K 7/26, B23K 7/28, B23K 7/30, B23K 7/32, B23K 7/34, B23K 7/36, B23K 7/38, B23K 7/40, B23K 7/42, B23K 7/44, B23K 7/46, B23K 7/48, B23K 7/50, B23K 7/52, B23K 7/54, B23K 7/56, B23K 7/58, B23K 7/60, B23K 7/62, B23K 7/64, B23K 7/66, B23K 7/68, B23K 7/70, B23K 7/72, B23K 7/74, B23K 7/76, B23K 7/78, B23K 7/80, B23K 7/82, B23K 7/84, B23K 7/86, B23K 7/88, B23K 7/90, B23K 7/92, B23K 7/94, B23K 7/96, B23K 7/98, B23K 8/00, B23K 8/02, B23K 8/04, B23K 8/06, B23K 8/08, B23K 8/10, B23K 8/12, B23K 8/14, B23K 8/16, B23K 8/18, B23K 8/20, B23K 8/22, B23K 8/24, B23K 8/26, B23K 8/28, B23K 8/30, B23K 8/32, B23K 8/34, B23K 8/36, B23K 8/38, B23K 8/40, B23K 8/42, B23K 8/44, B23K 8/46, B23K 8/48, B23K 8/50, B23K 8/52, B23K 8/54, B23K 8/56, B23K 8/58, B23K 8/60, B23K 8/62, B23K 8/64, B23K 8/66, B23K 8/68, B23K 8/70, B23K 8/72, B23K 8/74, B23K 8/76, B23K 8/78, B23K 8/80, B23K 8/82, B23K 8/84, B23K 8/86, B23K 8/88, B23K



A8 These composites include chromophoric monomer units that incorporate nonlinear optic chromophores, linking monomers that may be used to link chromophoric monomers, and polymers made from chromophoric monomers or chromophoric monomers in combination with linking monomers. The polymers can exhibit high thermal stability, which is believed to arise from their covalently bonded chromophore structures. In addition to their

to further increase the thermal and dipole stability of the polymers. Thus, monomer 1 having electron withdrawing group Q.

polymerized with the diacid II to give polyester polyimide having a λ_{max}^{CO} , glass transition temperature 170°, and decomposition

IT 488809-63-0P
KL: IMR (Industrial manufacture); PRP (Properties); PREP (Preparation);
(includes related subcategory subcategory manufacture and properties)

4,4'-(12,3,3'-trifluoro-1-(trifluoromethyl)ethylidenebis(1,3-

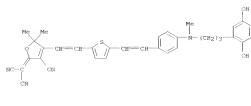
1,2-dihydro-2,3-dioxo-2H-isoindole-5,2-diy]]bis-, polymer with

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CX22 488803-62-7
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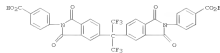
165 ANSWER 16 OF 53 CAPLUS COPYRIGHT 2010 ACS on 5TH (Continued)



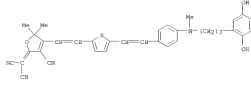
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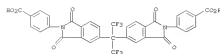
165 ANSWER 17 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



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4864 J. Neurosci., July 26, 2006 • 26(30):4858–4866 • The Journal of Neuroscience

CNF C33 H16 P6 N2 O8



2

CX22 488803-62-7
CMF C14 H20 N4 O3 2

163 ANSWER 19 OF 53 CAPLUS COPYRIGHT 2010 ACS on STM
2007124855 Document No. 1381214647 Novel fluorophores for single-molecule imaging Millesia, Katherine A.; Ostroverkhova, Oksana; Im, Henry Teisel, Robert J.; Moerner, W. E. (Department of Chemistry, Stanford University, Stanford, CA 94305, USA). Journal of the American Chemical Society, 127(15), 1747-1755 (Feb-Mar) 2005. CODEN JACSCT. ISSN: 0002-7863. Publisher: American Chemical Society.

AB Nonlinear optical fluorophores based on dicyanodihydrofuran acceptors paired with amine donors exhibit efficiently large fluorescence quantum yields and are capable to enable single-mol. detection in polymeric hosts. To illustrate the breadth of this class, six fluorophores are presented, spanning the emission range from 507 to 446 nm. In contrast to conventional single-mol. fluorophores, the new mols. feature sensitivity to local acidity, large ground-state dipole moments, and large polarizability anisotropies, properties that can be used to design new reporter septs. at the single-mol. level.

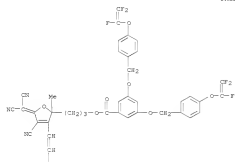
IT 502449-25-4
RI A16 (Analytical reagent use); PRP (Properties); ANOT (Analytical study); CDE (Use)
[Fluorophores based on dicyanodihydrofuran acceptors paired with amine donors for single-mol. imaging]
RI 502449-25-4 CAPLUS
CI Propandinitrile, 2-[3-cyano-4-[2-[5-(4-ethoxyphenyl)-5,5-dimethyl-2(1H)-furynylidene]-3-ethenyl]ethenyl]-5,5-dimethyl-2(1H)-furynylidene]-(CA INDEX NAME)



165 ANSWER 19 OF 53 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)
RI RCT (Reactant); STM (Synthetic preparation); PRP (Preparation); RACT (Reactant or reagent)
[Dendron synthesis; design, synthesis, and properties of highly efficient side-chain dendronized nonlinear optical polymers for electro-optics]

RI 502449-13-0 CAPLUS
CI Benzoic acid, 3,5-bis[[4-[[1,2,2-trifluoroethoxy]phenyl]methoxy]-, 3-(4-cyano-5-(dicyanomethylene)-3-[2-[5-[4-(4-ethyl[6-(methoxyethoxy)hexyl]amino]phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-2,5-dihydro-2-methyl-2-furyl]propyl ester (CA INDEX NAME)

PAGE 1-A

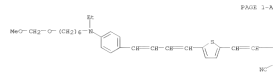


165 ANSWER 19 OF 53 CAPLUS COPYRIGHT 2010 ACS on STM
200712076 Document No. 1381255621 Design, synthesis, and properties of highly efficient side-chain dendronized nonlinear optical polymers for electro-optics. Ima, Chongsheng; Liu, Hong; Haller, Marianne; Liu, Li; Mo, Henry; Jen, Alex K.-Y. (Department of Materials Science and Engineering, University of Washington, Seattle, WA 98195-2120, USA). Advanced Materials (Weinheim, Germany), 14(27), 1763-1768 (English) 2002. CODEN ADVDM. ISSN: 0950-8644. Publisher: Wiley-VCH Verlag GmbH & Co. KGaA.

AB A simple and generally applicable method is developed for the post-functionalization of side-chain dendronized NLO polymers. This approach provides the combined advantages of achieving better poling efficiency through the site-isolation effect and shortening the time required for EO dendrimer synthesis. High poling efficiency has been achieved to afford an exceptionally large EO coefficient (57 pmV⁻¹ at 1.3μm).

IT 502449-25-4
RI RCT (Reactant); RACT (Reactant or reagent)
[Dendron synthesis; design, synthesis, and properties of highly efficient side-chain dendronized nonlinear optical polymers for electro-optics]
RI 502449-25-4 CAPLUS

CI Propandinitrile, 2-[3-cyano-4-[2-[5-[4-[4-ethyl[6-(methoxyethoxy)hexyl]amino]phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-5-(3-hydroxypropyl)-5-methyl-2(1H)-furynylidene]-(CA INDEX NAME)



PAGE 1-A

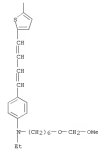


PAGE 1-B

IT 502449-13-0P 502449-15-2P

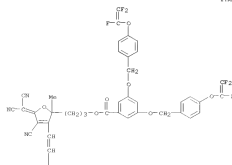
165 ANSWER 19 OF 53 CAPLUS COPYRIGHT 2010 ACS on STM (Continued)

PAGE 2-A

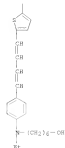


RI 502449-15-2 CAPLUS
CI Benzoic acid, 3,5-bis[[4-[[1,2,2-trifluoroethoxy]phenyl]methoxy]-, 3-(4-cyano-5-(dicyanomethylene)-3-[2-[5-[4-[4-ethyl[6-(methoxyethoxy)hexyl]amino]phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-2,5-dihydro-2-methyl-2-furyl]propyl ester (CA INDEX NAME)

PAGE 1-A



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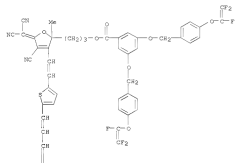


17 502449-17-49
 XLS RCT (Reactant); SYN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)
 (dendron design, synthesis, and properties of highly efficient side-chain dendronized nonlinear optical polymers for electro-optics)
 17 502449-17-4 CAPLUS
 CH 1,3-bis(methoxycarbonyl)benzylidene;
 1-[4-[[4-[[4-[[2-[[2-[[3-[[1,2,2-trifluoroethoxy]oxy]phenyl]methoxy]benzoyl]oxy]propyl]-4-cyano-5-(diisopropylethylene)-2,5-dihydro-2-methyl-3-furanyl]ethenyl]-2-thienyl]-3,3'-butadiene-1-yl]phenyl]ethylanilino]hexyl] ester (CA INDEX NAME)

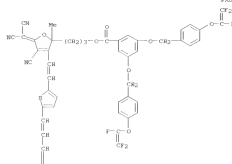
145 ANSWER 19 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
 dendronized nonlinear optical polymers for electro-optics
 17 502558-65-8 CAPLUS
 CH Phenol, 4-ethenyl-, homopolymer,
 6-[[4-[[4-[[5-[[2-[[2-[[3-[[1,2,2-trifluoroethoxy]oxy]phenyl]methoxy]benzoyl]oxy]propyl]-4-cyano-5-(diisopropylethylene)-2,5-dihydro-2-methyl-3-furanyl]ethenyl]-2-thienyl]-3,3'-butadiene-1-yl]phenyl]ethylanilino]hexyl 1,2-benzenedicarboxylate 4-[[1,2,2-trifluoroethoxy]oxy]benzoate (CA INDEX NAME)

CH 1
 CHN 502449-17-4
 CNF C33 H33 P6 N4 O21 S

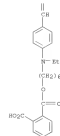
PAGE 1-A



PAGE 1-A

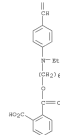


PAGE 2-A



17 502558-65-8P 502558-70-5P
 XLS PREP (Preparation); SYN (Synthetic preparation); PREP (Preparation)
 (design, synthesis, and properties of highly efficient side-chain

PAGE 2-A



CH 2
 CHN 134553-66-9
 CNF C9 H5 P3 O5



CH 3
 CHN 24973-70-2
 CNF C18 H18 O14
 OCl 1M5

CH 4
 CHN 26218-17-3
 CNF C8 H8 O



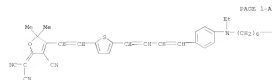
17 502558-70-5 CAPLUS
 CH Phenol, 4-ethenyl-, homopolymer, benzoate

145 ANSWER 19 OF 53 CAPLUS COPYRIGHT 2010 ACS ON STM (Continued)
6-[[4-[[4-[5-[2-[4-cyano-5-(4-cyanomethylene)-2,5-dihydro-2,2-dimethyl-1,3-furanyl]ethenyl]-2-thienyl]-1,3-butadien-1-yl]phenyl]ethylanilino]heptyl-1,3-benzenedisulfonamyl]sulfonate (CA INDEX NAME)

CM 3

CHN 502449-25-4

CMF C42 H42 N4 O5 S



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PAGE 1-B



CM 2

CHN 65-85-0

CMF C7 H6 O2



CM 3

CHN 24979-70-2

CMF C8 H8 O3

CCZ FMS

145 ANSWER 19 OF 53 CAPLUS COPYRIGHT 2010 ACS ON STM (Continued)

CM 4

CHN 2628-17-3

CMF C8 H8 O



IT 502449-27-2

RLX RCT (Reactant); RACT (Reactant or reagent)

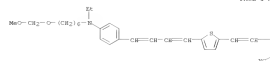
[pendent chromophore synthesis; design, synthesis, and properties of highly efficient side-chain dendronized nonlinear optical polymers for electro-optics]

CHN 502449-27-2

CM Propanedinitrile, 2-[3-cyano-6-[2-[5-[4-[4-ethyl[6-

(methoxymethoxy)heptyl]amino]phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanlidene]- (CA INDEX NAME)

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PAGE 1-B



IT 502449-21-0P

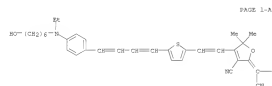
RLX RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

[pendent chromophore synthesis; design, synthesis, and properties of

145 ANSWER 19 OF 53 CAPLUS COPYRIGHT 2010 ACS ON STM (Continued)
highly efficient side-chain dendronized nonlinear optical polymers for electro-optics]

CHN 502449-21-0

CM Propanedinitrile, 2-[3-cyano-6-[2-[5-[4-[4-ethyl[6-hydroxyheptyl]amino]phenyl]-1,3-butadien-1-yl]-2-thienyl]ethenyl]-5,5-dimethyl-2(5H)-furanlidene]- (CA INDEX NAME)

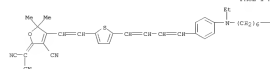


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PAGE 1-B

145 ANSWER 19 OF 53 CAPLUS COPYRIGHT 2010 ACS ON STM (Continued)

PAGE 1-A



PAGE 1-B



—CN

IT 502449-25-4P

RLX RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

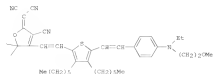
[pendent chromophore; design, synthesis, and properties of highly efficient side-chain dendronized nonlinear optical polymers for electro-optics]

CHN 502449-25-4

CM 1,3-benzenedisulfonamyl]sulfonate, 1-[6-[[4-[4-[5-[2-[4-cyano-5-

(4-cyanomethylene)-2,5-dihydro-2,2-dimethyl-3-furanyl]ethenyl]-2-thienyl]-1,3-butadien-1-yl]phenyl]ethylanilino]heptyl] ether (CA INDEX NAME)

165 ANMER 20 OF 53 CAPIUS COPYRIGHT 2010 ACS on STM
2002:83142 Document No. 137:332023 Highly hyperpolarizable chromophore for
core guest host systems useful for electro-optic devices. Taylor,
Isabell
Ellen; Ermer, Susan Patricia; Redworth, Peter V.; Loveloy, Steven M.;
Levy, David S.; Marder, Bruce R. (USA). U.S. Pat. Appl. Publ. US
2002/014165 A1 2002101, 3 pp. (English). CORD: USXKXO,
APPLCATTEN: US 2002-139156 20020342. FRI01777: US 2002-282478P
2002014165.
G1



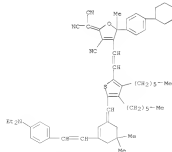
AS A chromophore in a polymer is given having the structure I in a
polycarbonate matrix. The composition is useful for electro-optic
material
that does not suffer (by heat) from the limitations of prior materials
used in the art. It is a further object to provide a new class of highly
hyperpolarizable organic chromophores. It is yet a further object of
this
invention to show a process for synthesizing the novel highly
hyperpolarizable organic chromophores. Another object is to provide
devices
such as electrooptic modulators employing the new class of novel highly
hyperpolarizable organic chromophores.
IT 47796-78-0P
RI: 385 (Industrial manufacture); STM (Technical or engineered material
use); FRP (Preparation); USXO (Uses)
(chromophore) highly hyperpolarizable chromophore for core guest host
systems useful for electro-optic devices)
20 47796-78-5 CAPIUS
20 Propandinitrile, 2-[3-cyano-5-(4-[(1E)-2-[5-[1(E)-2-[4-[ethyl(2-
methoxyethylamino)phenyl]ethenyl]-3,4-dihexyl-2-thienyl]ethenyl]-5,5-
dimethyl-2(5H)-furan-2-ylidene)-furan-2-ylidene]- (CA INDEX NAME)
double bond geometry as shown.

165 ANMER 21 OF 53 CAPIUS COPYRIGHT 2010 ACS on STM
2002:787053 Document No. 138:4286 Synthesis of Chromophores with Extremely
High Electro-Optic Activities. 2. Isophorone and Combined
Isophorone-Thiophene-Based Chromophores. Hu, Mingxian; Leslie, Thomas
M.-i

Sanatrop, John A.; Garner, Sean M.; Seed, Leon D. (Corning Incorporated,
Corning, NY, 14831, USA). Chemistry of Materials, 14(11), 4669-4675
(English) 2002. CORD: ONTDX. ISSN: 0997-4756. Publisher:
American Chemical Society.

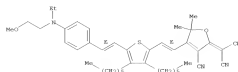
AS Four new isophorone and combined isophorone and thiophene bridged
chromophores have been synthesized. All of these new high μ
chromophores possess one newly synthesized triarylmethylhydrofuran
acceptors. Because of our unique acceptor design, all of our
chromophores
show high solubility in all organic solvents due to minimized
chromophore-chromophore electrostatic interactions. These chromophores
have also been studied with respect to their solvatochromism and thermal
behavior by TGA in air. Preliminary RO characterization of one of these
chromophores in polycarbonate has demonstrated an extremely high π of
70
pm/V at 1550 nm. We believe that this is the largest π reported at
this
wavelengths.

IT 47741-16-19 477741-17-0P
RI: FRP (Properties); SPM (Synthetic preparation); FRP (Preparation)
(synthesis of isophorone- and combined isophorone-thiophene-based
chromophores with extremely high electro-optic activities)
20 47741-16-5 CAPIUS
20 Propandinitrile, 2-[3-cyano-5-(4-cyclohexylphenyl)-4-[2-[3-[2-[4-
[(diethylamino)phenyl]ethenyl]-5,5-dimethyl-2-cyclohexen-1-ylidene)methyl]-
3,4-dihexyl-2-thienyl]ethenyl]-5-methyl-2(5H)-furan-2-ylidene]- (CA INDEX
NAME)

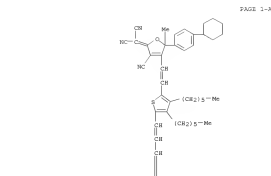


20 47741-17-4 CAPIUS
20 Propandinitrile, 2-[3-cyano-5-(4-cyclohexylphenyl)-4-[2-[5-[3-[3-[2-[4-

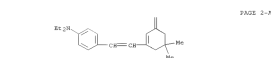
165 ANMER 20 OF 53 CAPIUS COPYRIGHT 2010 ACS on STM (Continued)



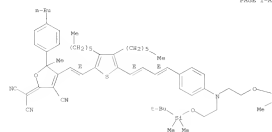
165 ANMER 21 OF 53 CAPIUS COPYRIGHT 2010 ACS on STM (Continued)
(diethylamino)phenyl]ethenyl]-5,5-dimethyl-2-cyclohexen-1-ylidene]-1-
propen-1-yl]-3,4-dihexyl-2-thienyl]ethenyl]-5-methyl-2(5H)-furan-2-ylidene]-
(CA INDEX NAME)



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Double bond geometry as shown.

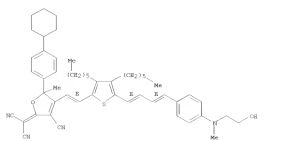
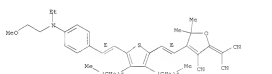
165 ANSWER 23 OF 53 CAPLOS COPYRIGHT 2010 ACS ON STN
20021770436 Document No. 13618788 Low-voltage electro-optic modulation using amorphous polycarbonate host material. Ermer, Susan Lowmyer, Steven M.; Redworth, Peter V.; Lemm, David S.; Maurer, Roger B.; Rostein, Joseph A.; Gilson, Dexter G.; Dries, Larry S.; Taylor, Rebecca E.; Barto, Richard S., Jr.; Rades, Wendell Van Roy; Timothy E.; Huse, Angeline E.; Anderson, William W. Lockheed Martin Advanced Technology Center, Palo Alto, CA, 94304-1171, USA. Advanced Functional Materials, 12(9), 605-610 (2001). CODEN ADVCEK. ISSN: 1616-301X. Publisher: Wiley-VCH Verlag GmbH & Co. KGaA.

AB The selection process leading to the development of a guest-host electro-optic material based on an amorphous polycarbonate (PC) is described. The optical loss at 1300 nm of this material system is under 2 dB/cm, which is the confidence limit of the slab measurement used. A Mach-Zehnder modulator fabricated using the push-pull poling technique has a low switching voltage (V_π) of 1.2 V.

IT 477892-39-Q; Chromophore 60H
E1: 20V (Device component use); PEP (Physical, engineering or chemical process); PEP (Preparation); PEP (Physical process); STM (Synthesis preparation); TM (Technical or engineered material use); PEP (Preparation); PEP (Process); USE (Data)
(Chromophore 60H, low-voltage electro-optic modulation using amorphous polycarbonate host material doped with chromophore 60H)

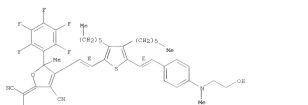
NO 477892-39-Q CAPLOS
NO Propagandinitrile, 2-[3-cyano-4-[(1E)-2-[4-[(4-oxo-4H-chromen-2-yl)amino]phenyl]ethenyl]-3,4-dihydro-2H-pyran-5-yl]-5-methyl-2-thienyl-2-furylidene]- (CA INDEX NAME)

Double bond geometry as shown.



NO 477892-40-Q CAPLOS
NO Propagandinitrile, 2-[3-cyano-4-[(1E)-2-[3,4-dihydro-1,5-[(1E)-2-[4-[(1E)-2-hydroxyethyl]amino]phenyl]ethenyl]-3-thienyl]ethenyl]-5-methyl-2-furylidene]- (CA INDEX NAME)

Double bond geometry as shown.



NO 477892-40-Q CAPLOS
NO Propagandinitrile, 2-[3-cyano-4-[(1E)-2-[3,4-dihydro-1,5-[(1E)-2-[4-[(1E)-2-hydroxyethyl]amino]phenyl]ethenyl]-3-thienyl]ethenyl]-5-methyl-2-furylidene]- (CA INDEX NAME)

Double bond geometry as shown.

165 ANSWER 24 OF 53 CAPLOS COPYRIGHT 2010 ACS ON STN
20021770436 Document No. 13618788 Low-voltage electro-optic modulation using amorphous polycarbonate host material. Ermer, Susan Lowmyer, Steven M.; Redworth, Peter V.; Lemm, David S.; Maurer, Roger B.; Rostein, Joseph A.; Gilson, Dexter G.; Dries, Larry S.; Taylor, Rebecca E.; Barto, Richard S., Jr.; Rades, Wendell Van Roy; Timothy E.; Huse, Angeline E.; Anderson, William W. Lockheed Martin Advanced Technology Center, Palo Alto, CA, 94304-1171, USA. Advanced Functional Materials, 12(9), 605-610 (2001). CODEN ADVCEK. ISSN: 1616-301X. Publisher: Wiley-VCH Verlag GmbH & Co. KGaA.

AB The selection process leading to the development of a guest-host electro-optic material based on an amorphous polycarbonate (PC) is described. The optical loss at 1300 nm of this material system is under 2 dB/cm, which is the confidence limit of the slab measurement used. A Mach-Zehnder modulator fabricated using the push-pull poling technique has a low switching voltage (V_π) of 1.2 V.

IT 477892-39-Q; Chromophore 60H
E1: 20V (Device component use); PEP (Physical, engineering or chemical process); PEP (Preparation); PEP (Physical process); STM (Synthesis preparation); TM (Technical or engineered material use); PEP (Preparation); PEP (Process); USE (Data)
(Chromophore 60H, low-voltage electro-optic modulation using amorphous polycarbonate host material doped with chromophore 60H)

NO 477892-39-Q CAPLOS
NO Propagandinitrile, 2-[3-cyano-4-[(1E)-2-[4-[(4-oxo-4H-chromen-2-yl)amino]phenyl]ethenyl]-3,4-dihydro-2H-pyran-5-yl]-5-methyl-2-thienyl-2-furylidene]- (CA INDEX NAME)

165 ANSWER 24 OF 53 CAPLOS COPYRIGHT 2010 ACS ON STN
20021770436 Document No. 13618788 Low-voltage electro-optic modulation using amorphous polycarbonate host material. Ermer, Susan Lowmyer, Steven M.; Redworth, Peter V.; Lemm, David S.; Maurer, Roger B.; Rostein, Joseph A.; Gilson, Dexter G.; Dries, Larry S.; Taylor, Rebecca E.; Barto, Richard S., Jr.; Rades, Wendell Van Roy; Timothy E.; Huse, Angeline E.; Anderson, William W. Lockheed Martin Advanced Technology Center, Palo Alto, CA, 94304-1171, USA. Advanced Functional Materials, 12(9), 605-610 (2001). CODEN ADVCEK. ISSN: 1616-301X. Publisher: Wiley-VCH Verlag GmbH & Co. KGaA.

AB The selection process leading to the development of a guest-host electro-optic material based on an amorphous polycarbonate (PC) is described. The optical loss at 1300 nm of this material system is under 2 dB/cm, which is the confidence limit of the slab measurement used. A Mach-Zehnder modulator fabricated using the push-pull poling technique has a low switching voltage (V_π) of 1.2 V.

IT 477892-39-Q; Chromophore 60H
E1: 20V (Device component use); PEP (Physical, engineering or chemical process); PEP (Preparation); PEP (Physical process); STM (Synthesis preparation); TM (Technical or engineered material use); PEP (Preparation); PEP (Process); USE (Data)
(Chromophore 60H, low-voltage electro-optic modulation using amorphous polycarbonate host material doped with chromophore 60H)

NO 477892-39-Q CAPLOS
NO Propagandinitrile, 2-[3-cyano-4-[(1E)-2-[4-[(4-oxo-4H-chromen-2-yl)amino]phenyl]ethenyl]-3,4-dihydro-2H-pyran-5-yl]-5-methyl-2-thienyl-2-furylidene]- (CA INDEX NAME)

165 ANSWER 24 OF 53 CAPLOS COPYRIGHT 2010 ACS ON STN
20021770436 Document No. 13618788 Low-voltage electro-optic modulation using amorphous polycarbonate host material. Ermer, Susan Lowmyer, Steven M.; Redworth, Peter V.; Lemm, David S.; Maurer, Roger B.; Rostein, Joseph A.; Gilson, Dexter G.; Dries, Larry S.; Taylor, Rebecca E.; Barto, Richard S., Jr.; Rades, Wendell Van Roy; Timothy E.; Huse, Angeline E.; Anderson, William W. Lockheed Martin Advanced Technology Center, Palo Alto, CA, 94304-1171, USA. Advanced Functional Materials, 12(9), 605-610 (2001). CODEN ADVCEK. ISSN: 1616-301X. Publisher: Wiley-VCH Verlag GmbH & Co. KGaA.

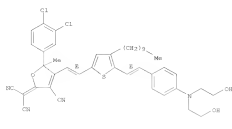
AB The selection process leading to the development of a guest-host electro-optic material based on an amorphous polycarbonate (PC) is described. The optical loss at 1300 nm of this material system is under 2 dB/cm, which is the confidence limit of the slab measurement used. A Mach-Zehnder modulator fabricated using the push-pull poling technique has a low switching voltage (V_π) of 1.2 V.

IT 477892-39-Q; Chromophore 60H
E1: 20V (Device component use); PEP (Physical, engineering or chemical process); PEP (Preparation); PEP (Physical process); STM (Synthesis preparation); TM (Technical or engineered material use); PEP (Preparation); PEP (Process); USE (Data)
(Chromophore 60H, low-voltage electro-optic modulation using amorphous polycarbonate host material doped with chromophore 60H)

NO 477892-39-Q CAPLOS
NO Propagandinitrile, 2-[3-cyano-4-[(1E)-2-[4-[(4-oxo-4H-chromen-2-yl)amino]phenyl]ethenyl]-3,4-dihydro-2H-pyran-5-yl]-5-methyl-2-thienyl-2-furylidene]- (CA INDEX NAME)

Double bond geometry as shown.

165 ANSWER 24 OF 53 CAPLOS COPYRIGHT 2010 ACS ON SYN (Continued)



2
 CAS 16673-09-9
 CMT C9 C12 C10 C2

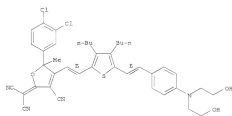


3
 CAS 1154-26-9
 CMT C8 C6 C14 C2



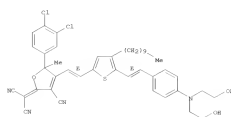
383124-85-4P
 RI: IMF (Industrial manufacture); RCT (Reactant); TDM (Technical or

165 ANSWER 24 OF 53 CAPLOS COPYRIGHT 2010 ACS ON SYN (Continued)



165 ANSWER 24 OF 53 CAPLOS COPYRIGHT 2010 ACS ON SYN (Continued)

emerged material use); PREP (Preparation); USES (Uses)
 [monomer chromophore; prodn. of intermediates for electrooptical chromophores]
 RI: IMF (Industrial manufacture); TDM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 383124-85-4 CAPLOS
 CN Propagandinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-5-methyl-2-thienyl]ethenyl]-3-pyrazo-5-(7,4-dichlorophenyl)-5-methyl-2-(1E)-Furyl]idene]- (CA INDEX NAME)
 Double bond geometry as shown.



383124-86-5P
 RI: IMF (Industrial manufacture); TDM (Technical or engineered material use); PREP (Preparation); USES (Uses)
 383124-86-5 CAPLOS
 CN Propagandinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-diethyl-3-thienyl]ethenyl]-3-pyrazo-5-(7,4-dichlorophenyl)-5-methyl-2-(1E)-Furyl]idene]- (CA INDEX NAME)
 Double bond geometry as shown.

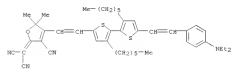
165 ANSWER 24 OF 53 CAPLOS COPYRIGHT 2010 ACS ON SYN (Continued)

165 ANSWER 23 OF 53 CAPLOS COPYRIGHT 2010 ACS ON SYN
 20001233700 Document No. 1361143700 Maxically stabilized second-order nonlinear optical chromophores and devices incorporating the same.
 Bolton, LARRY B.; Shim, Chong Meng; Chaudhary, Petteen; Harold S.; Wang, Fanny Steier; William, Harper; Aaron W.; Ben, Albert S.; Michael, Joseph (Pacific Wave Industries, Inc., USA) U.S. PAT. 6,352,177 B1 20020326, 30 pp., Cont.-in-part of U.S. 6,067,186. (English).
 CODEN USXSWX APPLICATION US 2000-088422 20000220. 4910277; US 1998-122806 19980727.

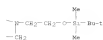
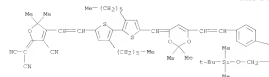
AB Nonlinear optical devices are described in which the active element incorporates a chromophore which includes an electron donor group and an electron acceptor group joined by a bridge structure, preferably a ring-locked bridge structure. Preferably, at least the electron acceptor group is bonded to the bridge structure via a conjugated diene. In a preferred embodiment, the bridge structure also includes a bulky side group. The bridge structure may comprise two protected alicyclic rings or ring-locked trienes. Alternatively, the chromophore may include an electron donor group, a ring-locked triene electron acceptor group, and a bridge structure between them. The electron acceptor group may comprise an imphenone structure. The bridge structure may include a bithiophene unit or a modified isophenone unit.

381445-08-4 381445-10-8
 RI: RMV (Resin component use); USES (Uses)
 [nonlinear optical devices employing sterically stabilized second-order nonlinear optical chromophores]

381445-08-4 CAPLOS
 CN Propagandinitrile,
 2-[3-pyrazo-4-[2-[5'-[2-[4-(diethylamino)phenyl]ethenyl]-3,3'-diethyl-2,2'-bithiophenyl]-5-yl]ethenyl]-5,5-dimethyl-2(1E)-Furyl]idene]- (CA INDEX NAME)



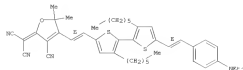
381445-10-8 CAPLOS
 CN Propagandinitrile, 2-[4-[2-[5'-[16-[2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-2,2-dimethyl-48(1,3-dioxan-5-ylidene)phenyl]-3,3'-diethyl-2,2'-bithiophenyl]-5-yl]ethenyl]-3-pyrazo-5,5-dimethyl-2(1E)-Furyl]idene]- (CA INDEX NAME)



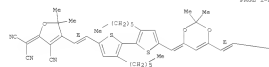
145 ANMER 26 OF 53 CAPLUS COPYRIGHT 2010 ACS on STM
2002:172353 Document No. 1761235020 Second-order nonlinear optical chromophores containing diol and/or bihiophene as conjugate bridge and device incorporating the same. Wang, Chaoqunqun; Zhang, Cheng; Fetterman, Harold R.; Steier, William Michael; Joseph (Pacific Wave Industries, Inc., USA). U.S. Pat. Appl. Publ. US 20020037220 A1 20020307, 16 pp., Cont.-in-part of U. S. Ser. No. 489,422. (English). CODES UNCLD. APPLCCT72708; US 2001-094655 20010703; FIC010771; US 2000-489422 20000120; US 1978-123806 19980727; US 2000-549710
G1 20000411; US 2000-551685 20000418.

* STRUCTURE DIAGRAM TOO LARGE FOR DISPLAY - AVAILABLE VIA OFFLINE PRINT *

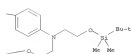
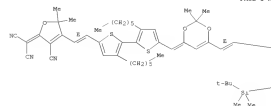
AB Nonlinear optical devices (e.g., electrooptical modulators, phase shifters) comprising an active element formed from a chromophore including an electron donor group, an electron acceptor group, and a bridge structure between the electron donor group and the electron acceptor group are described in which the chromophores is described by the general formula I, the bridge structure is described by the general formula II, or the electron donor group and the bridge structure are described by the general formula III (A = CH₂ or Cy R = is an electron acceptor and R = independently selected R, F, or a perhalogenated, halogenated, or nonhalogenated C1-30 aliphatic or aromatic group functionalized with SO hydroxy, ether, ester, amide, silyl, and silyloxy groups).
IT 402857-28-T
E1: INV (Device component use); USES (Uses)
BU 402857-27-6 CAPLUS (Nonlinear optical devices employing second-order nonlinear optical chromophores containing diol and/or bihiophene as conjugate bridge)
CN Propandinitrile, 2-[3-cyano-6-[(1E)-2-[5'-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]-2,2'-dimethyl-4E-1,3-dioxin-4-ylidene]methyl]-5,5'-dimethyl-2-(SE)-furanylidene]- (CA INDEX NAME)
Double bond geometry as shown.



BU 402857-28-T CAPLUS
CN Propandinitrile, 2-[3-cyano-6-[(1E)-2-[5'-[(6-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]-2,2'-dimethyl-4E-1,3-dioxin-4-ylidene]methyl]-5,5'-dimethyl-2,2'-furanylidene]-3-yl]ethenyl]-4,5-dimethyl-2-(SE)-furanylidene]- (CA INDEX NAME)
Double bond geometry as described by E or S.



IT 402857-26-5P
E1: INV (Device component use); SYN (Synthetic preparation); PREP (Preparation); USES (Uses)
BU 402857-26-5 CAPLUS (Nonlinear optical devices employing second-order nonlinear optical chromophores containing diol and/or bihiophene as conjugate bridge)
CN Propandinitrile, 2-[4-[(1E)-2-[5'-[(6-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]-2,2'-dimethyl-4E-1,3-dioxin-4-ylidene]methyl]-3,3'-diethyl-2,2'-bihiophen]-5-yl]ethenyl]-3-cyano-6,5-dimethyl-2-(SE)-furanylidene]- (CA INDEX NAME)
Double bond geometry as described by E or S.



TIME

163 ANSWER 29 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
2002/05034 Document No. 1361324350 Hyperpolarizable organic chromophores.
Dalton, Larry R.; Jee, Alex Kwan-Yue; Londergan, Timothy; Carlson,
William

Brendan; Phelan, Gregory; Huang, Diguang; Cassier, Daniel; Ray, Todd;
Baker, Nicholas (University of Washington, USA). PCT Int. Appl. WO 2002008215

AI 20020131; 104 pp. DESIGNATED STATES: W, AB, AG, AU, AM, AT, AO, A2, AR, AS, BF, BG, BR, CA, CH, CN, CO, CU, CY, DE, DK, EE, EG, ES, FI, FR, GB, GR, GM, GU, HK, HU, IL, IN, JP, KE, KG, KP, KR, KZ, LA, LB, LG, LI, LU, LV, LY, MA, MG, MK, MN, MU, MV, MW, MY, NZ, PA, PE, PG, PH, PK, PL, PT, PY, RO, RU, RW, SD, SG, SI, SK, SL, SV, TH, TJ, TT, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW. AM, AU, BF, BG, BR, CA, CH, CN, CO, CU, CY, DE, DK, EE, EG, ES, FI, FR, GB, GR, GM, GU, HK, HU, IL, IN, JP, KE, KG, KP, KR, KZ, LA, LB, LG, LI, LU, LV, LY, MA, MG, MK, MN, MU, MV, MW, MY, NZ, PA, PE, PG, PH, PK, PL, PT, PY, RO, RU, RW, SD, SG, SI, SK, SL, SV, TH, TJ, TT, UA, UG, US, UZ, VN, YU, ZA, ZM, ZW. (English). COBLENZ: 932623. APLACATIVITY: WO 2002-082153 20020131. PUBLICITY: NS 2002-082153 20020131.

AG The present invention provides hyperpolarizable organic chromophores based on heterocyclic compounds. The chromophores are nonlinear optically active compounds that include a π -donor conjugated to a π -acceptor through a π -electron conjugated bridge. Macromolecular structures including the hyperpolarizable organic chromophores are also provided.

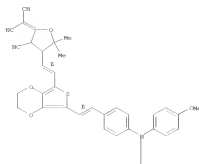
IT 392462-44-1P 392462-45-2P
B1: DM (Industrial manufacture); TM (Technical or engineered material use); PREP (Preparation); USES (Uses) (chemistry); production of donor-acceptor conjugated hyperpolarizable heterocyclic organic chromophores

RI 392462-44-1 CAPLUS
CI 392462-44-1, 2-[4-[(1E)-2-[7-[(1E)-2-[4-bis(4-methoxyphenyl)amino]phenyl]ethenyl]-2,3-dihydrothieno[3,4-b]-1,4-dioxole-5-yl]ethenyl]-3-cyanodihydro-5,5-dimethyl-2(1H)-furanlidene]- (CA INDEX NAME)

Double bond geometry as shown.

165 ANSWER 29 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

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PAGE 2-A

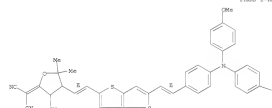


RI 392462-45-2 CAPLUS
CI 392462-45-2, 2-[4-[(1E)-2-[5-[(1E)-2-[4-bis(4-methoxyphenyl)amino]phenyl]ethenyl]thieno[3,4-b]thien-2-yl]ethenyl]-3-cyanodihydro-5,5-dimethyl-2(1H)-furanlidene]- (CA INDEX NAME)

Double bond geometry as shown.

165 ANSWER 29 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

PAGE 1-A



PAGE 1-B

~ OMe

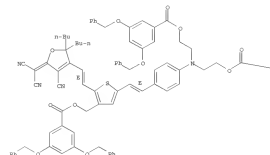
IT 392462-55-4P
B1: DM (Industrial manufacture); TM (Technical or engineered material use); PREP (Preparation); USES (Uses) (chemistry); production of donor-acceptor conjugated hyperpolarizable heterocyclic organic chromophores

RI 392462-55-4 CAPLUS
CI 392462-55-4, 2-[4-[(1E)-2-[4-[(1E)-2-[7-[(1E)-2-[4-bis(4-methoxyphenyl)amino]phenyl]ethenyl]-2,3-dihydrothieno[3,4-b]-1,4-dioxole-5-yl]ethenyl]-3-cyanodihydro-5,5-dimethyl-2(1H)-furanlidene]- (CA INDEX NAME)

Double bond geometry as shown.

165 ANSWER 29 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

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PAGE 1-B



IT 392462-59-4P 392462-63-4P
B1: DM (Industrial manufacture); TM (Technical or engineered material use); PREP (Preparation); USES (Uses) (chemistry); production of donor-acceptor conjugated hyperpolarizable heterocyclic organic chromophores

RI 392462-59-4 CAPLUS
CI 392462-59-4, 2-[3-cyano-4-[(1E)-2-[5-[(1E)-2-[4-(diethylamino)phenyl]ethenyl]thieno[3,4-b]thien-2-yl]ethenyl]-5,5-dimethyl-2(1H)-furanlidene]- (CA INDEX NAME)



165 ANSWER 31 OF 53 CAPLOS COPYRIGHT 2010 ACS ON STN
2002117434 Document No. 11747051 Compact EO polymer vibration sensors
utilizing various planar and hybrid fiber/waveguide architectures.
Tetrahedral Area (TETTER, Carlisle, CA, 90009, USA). Polymer News,
20 (12),

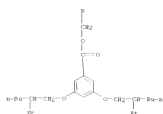
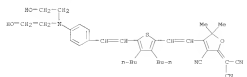
409-415 (English) 2001. CODEN:PLUMPT. ISSN: 0032-3518.
Publisher: Gordon & Breach Science Publishers.
AB The use of electro-optic (EO) polymers for high frequency vibration
sensing applications is explored. This paper presents four integrated
optical-based sensor architectures designed to perform acoustic spectrum
analysis. These devices utilize EO polymer materials traditionally used for
communication applications, whereas here they are used to perform
heterodyning to down-convert high frequency (GHz) vibrations to lower
frequencies and utilize low-frequency photo detectors. In conjunction
with a pulsed laser, the sensors are capable of interrogating sub-surface
structures of thin films and opaque materials at micron and sub-micron
depth resolution. To make a practical device requires addressing loss,
size, mech. and thermal fluctuation tolerance, and ease of fabrication issues.
Therefore, four different architectures are implemented and compared.

The implemented devices consist of planar waveguide and fiber structures
utilizing ridge, slab mode, hybrid ridge/slab mode, and hybrid
fiber/waveguide architectures. Performances of all four devices are
compared, and the best architecture is chosen. Low-frequency spectra
illustrate the proof of concept, while high frequency spectra (measured up
to 200 MHz) illustrate the sensing of vibration excited by a pulsed

laser. Application of the technol. for different industries is
discussed.
17 431151-31-4

RI, DEV (Device component use); PEP (Properties); USES (Uses)
[Compact electro-optic polymer vibration sensors utilizing various
planar and hybrid fiber/waveguide architectures]
RI 431151-31-4 Call Num
CN Proprietary/trade.
[4-((1E)-2-((4-((1E)-2-hydroxyethyl)amino)phenyl)ethenyl)-
3,4-dimethyl-2-thienyl)ethenyl]-3-oxano-5,8-dimethyl-2-(3H)-furan-1(2H)-
one polymer (PCI) (CA INDEX NAME)

CN 3
CIN 224746-62-7
CIN 236 642 DA 09 8



165 ANSWER 32 OF 53 CAPLOS COPYRIGHT 2010 ACS ON STN
2001095613 Document No. 13615289 Chromophores, their production and
their

use for polymeric thin films and optical waveguides. He, Manqian;
Leslie, Thomas M. (Corning Incorporated, USA). PCT Int. Appl. WO
2001095613 A1 20011227, 48 pp. (UNPUBLISHED STATES: W, AE, AG,
AL, AM, AT, AU, BA, BB, BE, BG, BR, BY, BZ, CA, CH, CN, CR, CY, CZ, DE,
DK, DM, DO, EE, EG, FI, GB, GD, GE, GR, HU, IL, IN, IT, JP, KE, KG,
KH, KR, KP, KS, KZ, LC, LS, LU, LV, LY, MD, ME, MG, MK, MN, MU, MW,
MX, MY, NZ, NI, NL, NO, NP, NR, NU, NZ, PA, PE, PG, PH, PK, PL, PT,
RU, SA, SG, SI, SK, SL, SM, SN, SV, SW, SY, TD, TH, TJ, TR, TT,
TZ, UA, UG, UZ, VN, YU, ZA, ZM, ZW. Int. Cl. H01S 3/00, H01S 3/02, F,
G, H, I, J, K, L, M, N, P, Q, R, S, T, U, V, W, X, Y, Z. (English). CODEN: P1002X.
APPLICATION NO 2001-015557 20010516. PUBLICITY: IP 2002-10-11.
20000416;
US 2000-475946 20000929.

AB The present invention is directed to chromophores having novel
electron-withdrawing groups and novel bivalent optically active and to
optical waveguides and optical devices having polymeric thin films which
contain the novel chromophores. An example was given for the production
of

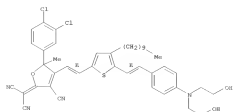
the bis(hydroxyethyl)amino derivative of a conjugated chromophore
containing

thiophene and dihydrofuran rings; this compound was copolymerized with a
chlorinated nonbenzenoidicarboxylic acid derivative and a chlorinated
epylenediol to provide an electrooptical polyester.

IT 361116-85-49
RI, IMP (Industrial manufacture); RCT (Reactant); TM (Technical or
engineered material use); PREP (Preparation); RCT (Reactant or reagent);
USES (Uses)
(monomer chromophore; production of intermediates for electrooptical
chromophores)

RI 361116-85-49 CAPLOS
CN Proprietary/trade, 2-[4-((1E)-2-[5-[(1E)-2-[4-((1E)-2-oxano-5-
hydroxyethyl)amino]phenyl)ethenyl]-6-oxyl-2-thienyl)ethenyl]-3-oxano-5-
[5,4-dihydrothienyl]-5-methyl-2-(3H)-furan-1(2H)-one polymer] (CA INDEX NAME)

Double bond geometry as shown.



IT 361116-86-59
RI, IMP (Industrial manufacture); TM (Technical or engineered material
use); PREP (Preparation); USES (Uses)
(monomer chromophore; production of intermediates for electrooptical

145 ANNEK 34 OF 53 CAPLUS COPYRIGHT 2010 ACS ON STN

2001144914 Document No. 135144910 Sterically stabilized second-order nonlinear optical chromophores and devices incorporating the same.
 Balton, Larry R.; Sharp, Chang; Wang, Chaohuang; Pettenies, Harold R.; Wang, Feng; Steier, William; Harper, Aaron W.; Neu, Albert S.; Michael, Joseph; Pacific Wave Industries, Inc., USA. PCT Int. Appl. WO 2001031146

At 20010122, 52 pp. UNCLASSIFIED STATES: M; AS; AG; AL; AM; AT; AU; AZ; BA; BB; BG; BH; BR; CA; CH; CN; CO; CR; CS; DE; DK; DM; DO; EA; EG; FI; GB; GR; HU; IL; IN; JP; KE; KG; KH; KR; KZ; LA; LB; LG; LI; LU; LV; MA; MD; MG; MK; MN; MU; MW; MY; NZ; OM; PA; PE; PG; PH; PK; PL; PT; RO; RU; SA; SD; SE; SG; SI; SK; SL; SM; SN; SV; TH; TJ; TM; TR; TT; UA; US; UZ; VN; WY; ZA; ZM; ZW. Also, AU; BR; CA; CH; CN; CO; CR; CS; DE; DK; DM; DO; EA; EG; FI; GB; GR; HU; IL; IN; JP; KE; KG; KH; KR; KZ; LA; LB; LG; LI; LU; LV; MA; MD; MG; MK; MN; MU; MW; MY; NZ; OM; PA; PE; PG; PH; PK; PL; PT; RO; RU; SA; SD; SE; SG; SI; SK; SL; SM; SN; SV; TH; TJ; TM; TR; TT; UA; US; UZ; VN; WY; ZA; ZM; ZW. (English). C20000131622. APPLICATION:CN NO 2001-051555 20010117. PRIORITY:US 2000-488422 20000110.

AB Second-order optical devices are described in which the active element incorporates a chromophore which includes an electron donor group and an electron acceptor group joined by a bridge structure, preferably a ring-locked bridge structure. Preferably, at least the electron acceptor group is bonded to the bridge structure via a noncoplanar diene. In a preferred embodiment, the bridge structure also includes at least one bulky side group. The bridge structure may comprise two protected alkylic rings or ring-locked trisiloxane. Alternatively, the chromophore

may include an electron donor group, a ring-locked tricyano electron acceptor group, and a bridge structure between them. The electron acceptor group may comprise an isopropenyl structure. The bridge structure may include a

a methoxyphenyl unit or a modified isopropenyl unit.

1T 351441-09-4 351441-10-8

El: 351 35V (device component use); USES (Uses)

(nonlinear optical devices employing sterically stabilized

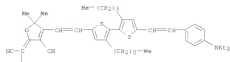
second-order

nonlinear optical chromophores)

RU 351441-09-4 CAPLUS

CH Preparednitrile,

2-[3-oxano-4-[2-[5'-[4-(diethylamino)phenyl]ethenyl]-2-[5'-[4-(diethylamino)phenyl]ethenyl]-3,5-dimethyl-2(1H)-furylidene]- (CA INDEX NAME)



RU 351441-10-8 CAPLUS

CH Preparednitrile, 2-[4-[2-[5'-[16-[2-[4-[16a[2-[11,3-

145 ANNEK 35 OF 53 CAPLUS COPYRIGHT 2010 ACS ON STN

2001144910 Document No. 135144910 Rapid and efficient synthesis of 2-[3-oxano-4-(2-arylidene)-5,5-dimethyl-3H-furan-2-ylidene]-malononitrile under focused narrowband irradiation. Vilemsh, Rüdiger; Liao, Liang

(Encls)

Nationale Supérieure d'Ingenieurs de Caen, 14034, DMG CHES 6507, Caen, F-14034, Fr.). Synthetic Communications, 31(13), 1775-1780 (English) 2001. CODEN SYNGAV. 128H 2039-7921. OTHER SOURCES: CASREACT 1351288446. PUBLISHER: Marcel Dekker, Inc..

AB New Biol. potential. 2-furylidene)malononitrile were synthesized efficiently by one-pot condensation under focused irradiation from starting and easy available compounds. An example compound thus prepared was [3-oxano-4-(18-[2-(2-furylidene)ethenyl]-5,5-dimethyl-2(1H)-furylidene)]preparednitrile.

1T 364593-36-CP 364593-37-CP 364593-38-CP

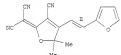
El: 364 (Synthetic preparation); PREP (Preparation)

(preparation of [3-oxano-4-(18-[2-(2-aryl)ethenyl]-5,5-dimethyl-2(1H)-furylidene)]preparednitrile)

RU 364593-36-CP CAPLUS

CH Preparednitrile, 2-[3-oxano-4-(18-[2-(2-furylidene)ethenyl]-5,5-dimethyl-2(1H)-furylidene)- (CA INDEX NAME)

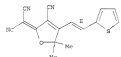
Double bond geometry as shown.



RU 364593-37-1 CAPLUS

CH Preparednitrile, 2-[3-oxano-5,5-dimethyl-4-[(18)-2-(2-thienyl)ethenyl]-2(1H)-furylidene)- (CA INDEX NAME)

Double bond geometry as shown.



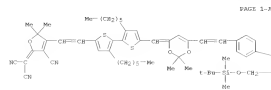
RU 364593-38-2 CAPLUS

CH Preparednitrile, 2-[3-oxano-5,5-dimethyl-4-[(18)-2-(3-thienyl)ethenyl]-2(1H)-furylidene)- (CA INDEX NAME)

Double bond geometry as shown.

145 ANNEK 34 OF 53 CAPLUS COPYRIGHT 2010 ACS ON STN (Continued)

dimethyl)ethenyl]dimethyl)ethenyl]oxyethenyl]amino]phenyl]ethenyl]-2,2-dimethyl-4a-1,3-dioxin-5-ylidene]ethenyl]-3,5-dimethyl-2(1H)-furylidene)-5-ylidene]ethenyl]-3-oxano-5,5-dimethyl-2(1H)-furylidene)- (CA INDEX NAME)

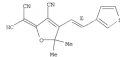


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145 ANNEK 35 OF 53 CAPLUS COPYRIGHT 2010 ACS ON STN (Continued)



163 ANSWER 36 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

200142133 Document No. 135-218333 Production of high bandwidth polymeric electro-optic modulators with V₅₀ voltages of less than 1 volt. Dalton, Larry; Robinson, Harvey; Stolar, William. Department of Chemistry, University of Washington, Seattle, WA, 98195-1700, USA. MRLC 047, Section 8 Nonlinear Optics, 23(1-4), 23-34 (April) 2000. CODEN: MRLC08. ISSN: 1058-7268. Publisher: Gordon & Breach Science Publishers.

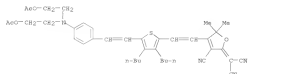
AB Structure/function relations crucial to realization of broad bandwidth, low halfwave voltage, high stability polymeric electro-optic modulators are discussed. Particular attention is given a family of chromophores containing fluorene acceptors. Such chromophores permit the simultaneous realization of large mol. hyperpolarizability and thermal stability. The role of internal, electrostatic interactions in limiting maximum achievable macroscopic electro-optic activity is discussed within the frameworks of both equilibrium and Monte Carlo statistical mech. calcns. The processing of polymeric electro-optic materials into low optical loss, 3-dimensional optical circuits is discussed. Finally, the use of polymeric electro-optic circuits for realization of phased array radar, time stretching, and other device applications is reviewed.

IT 21111-38-7 265992-54-9
R1: 26V (Device component use); MCA (Modifier or additive use); OSES (Uses)

V6 (production of high bandwidth polymeric electro-optic modulators with voltages of less than 1 V)

200142133 Document No. 135-218333 CAPLUS

CH 2-(4-{[2-{5-[2-{4-[bis[2-(acetoxy)ethyl]amino]phenyl]ethynyl]-3-cyano-5,5-dimethyl-2(5H)-furylidene]-3-cyano-5,5-dimethyl-2(5H)-furylidene]-2-thienyl]ethynyl]phenyl}amino)-4-cyanophenyl ester (ICI) (CA INDEX NAME)



200142133 Document No. 135-218333 CAPLUS

CH 2-(4-{[2-{5-[2-{4-[bis[2-(acetoxy)ethyl]amino]phenyl]ethynyl]-3-cyano-5,5-dimethyl-2(5H)-furylidene]-3-cyano-5,5-dimethyl-2(5H)-furylidene]-2-thienyl]ethynyl]phenyl}amino)-4-cyanophenyl ester (ICI) (CA INDEX NAME)

163 ANSWER 37 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

2000187115 Document No. 134179119 Progress toward Device-Quality Second-Order Nonlinear Optical Materials. 4. A Tri-link High μ D₃₃ Chromophore in Thermally Polyurethanes: A "Guest-Host" Approach to Larger Electro-Optic Coefficients. Chang, Changyong; Wang, Changyong; Dalton, Larry R.; Zhang, Rui; Stolar, William R.; Isler, Christopher; Thirumangalakudi, Department of Chemistry, University of Southern California, Los Angeles, CA, 90089-1662, USA. Macromolecules, 34(12), 223-241 (April) 2001. CODEN: MACM08. ISSN: 0024-9297. Publisher: American Chemical Society.

AB A tri-linkable thiophene-containing second-order nonlinear optical (NLO) chromophore [HO3FTC] was synthesized from a tri-linkable donor imide and a tri- π -conjugated electron acceptor (TC). The TC acceptor was modified with two Bu groups which greatly increased solubility and processability of the trihydroxy-functionalized chromophore and inhibited strong chromophore-chromophore interaction. A thermal stability study of HO3FTC indicates that the free hydroxyl group located close to the cyano acceptor causes the chromophore to decompose at a much lower temperature than TC chromophores with no free hydroxyl groups. Significantly improved thermal stability of the chromophore in a polyurethane film was obtained by making the free hydroxyl groups with toluene diisocyanate (TDI). Polyurethane prepolymer synthetic schemes were designed and studied in detail to improve film. Field induced electro-optic enhancement of over 20% in poling efficiency was achieved by reducing the degree of chromophore attachment to the polymer backbone before applying an elec. poling field through a guest-host approach. It was critical to allow TDI and triethanolamine hydroxyl cross-linkers to react at higher temperature for a longer time to form a partially cross-linked prepolymer before the -NCO reacted tri-link chromophore was added. By anchoring chromophores to a three-dimensional cross-linked polyurethane network at three points, the thermal stability of poling-induced electro-optic activity was enhanced by 33%.

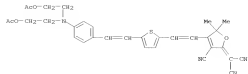
IT 268148-55-6P
R1: RCT (Reactant); SPN (Synthetic preparation); PREP (Preparation); RACT (Reactant or reagent)

TR1:acyclic-thiophene chromophore and incorporation to TBI-TEA prepolymer to obtain polyurethane second-order NLO with high poling efficiency

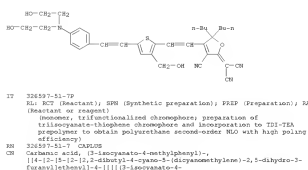
200142133 Document No. 135-218333 CAPLUS

CH 2-(4-{[2-{5-[2-{4-[bis[2-(acetoxy)ethyl]amino]phenyl]ethynyl]-3-cyano-5,5-dimethyl-2(5H)-furylidene]-3-cyano-5,5-dimethyl-2(5H)-furylidene]-2-thienyl]ethynyl]phenyl}amino)-4-cyanophenyl ester (ICI) (CA INDEX NAME)

163 ANSWER 36 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



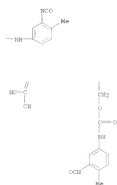
163 ANSWER 37 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



200142133 Document No. 135-218333 CAPLUS

CH 2-(4-{[2-{5-[2-{4-[bis[2-(acetoxy)ethyl]amino]phenyl]ethynyl]-3-cyano-5,5-dimethyl-2(5H)-furylidene]-3-cyano-5,5-dimethyl-2(5H)-furylidene]-2-thienyl]ethynyl]phenyl}amino)-4-cyanophenyl ester (ICI) (CA INDEX NAME)

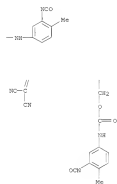
145 ANSWER 37 OF 53 CAPLOS COPYRIGHT 2010 ACS on STN (Continued)
PAGE 1-8



PAGE 2-A

IT 324197-12-SP
E1: FRP (Properties); SPH (Synthetic preparation); FRFP (Preparation)
poly(ethylene glycol) 1,4-bis(isocyanato-2-methylphenyl) and
incorporation to TDI-TEA prepolymer to obtain polyurethane
second-order
E1:O with high polymer efficiency)
E1: 324197-12-8 CAPLOS
CH Carbinic acid, 1,2-bis(isocyanato-4-methylphenyl)-,
[14-(2,5-bis(2,2,2-trifluoroethyl)-4-cyano-5-(dicyanomethylene)-2,5-dihydro-3-
furanol)methylene]-4,4'-[1,1'-bis(isocyanato-4-
methylphenyl)amino]oxy[methylene]-2-thienyl]ethenyl]phenyl]indole[di-
2,1-ethanediyl] ether, polymer with 2,4-diisocyanato-1-methylbenzene and

145 ANSWER 37 OF 53 CAPLOS COPYRIGHT 2010 ACS on STN (Continued)
PAGE 1-8



PAGE 2-A

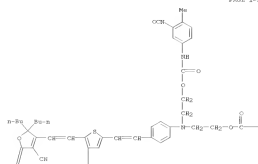
CH 2
CH2 154-84-9
CH2 C9 H8 H2 O2



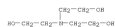
CH 3

145 ANSWER 37 OF 53 CAPLOS COPYRIGHT 2010 ACS on STN (Continued)
2,2',2''-nitrotriethyl[ethanol] (PCI) (CA INDEX NAME)
CH 1
CH2 324597-51-7
CH2 C62 H58 N10 O10 S

PAGE 1-A



145 ANSWER 37 OF 53 CAPLOS COPYRIGHT 2010 ACS on STN (Continued)
CH2 102-71-6
CH2 C6 H13 N O3



065-89878 39 OF 3 CARLISLE COPYRIGHTED 2012 ACS ON SYNON
 1985: ARHIV 17 Document No. 134:123237 Realization of polymer electro-optical
 modulators with less than one volt drive voltage requirement. ZHANG,
 JIAN; JIAO, JIAN; WU, MINGJIE; LI, HONGYI; CHEN, HAIDONG; LI, LINDA;
 CHRISTOPHER, BEN; ALEX K. Y.; LONDERGAN, TIMOTHY; STEIER, WILLIAM H.;
 DALTON, LARRY R. *Inkorpor Hydrocarbon Research Institute, University of*
California at Berkeley, CA 94720-1770, USA.
 Research Society Symposium Proceedings, 1998(Electrical, Optical, and
 Magnetic Properties of Organic Solid-State Materials V), MS4-271-MS4-273/
 1999-0000, 1999, 10 pages. ISSN: 0273-9177. Publisher:
 Materials Research Society.

A2 The roles played by spatially anisotropic intermol. electrostatic interactions, chromophore shape, host dielec. constant, and poling field strength in defining maximum achievable electrooptic activity for elec.

cholephore/polymer materials were studied by equilibrium and Monte-Carlo quantum statistical mech. calcns. Even simple Ramanitons reproduce critical qnt. features such as the existence of a maximum in plots of electrostatic activity vs. cholephore number n in a polymer matrix. Comparison of their results for various methods provides a useful check on the validity of approxs. employed with individual methods. The most significant conclusion to derive from a comparison of exptl. and theor. results is the dependence of maximum achievable electrooptic activity

phosphore shape. Their calcua. suggest a new paradigm for the design of optan electrooptic phosphore; realization of the desired shape and optical activity facilitates the realization of the desired electrooptic effect. Internal electrostatic interactions, the dependence of electrooptic activity upon material diele. permittivity and elec. poing field strength is one of the most important factors in the design of phosphore. Of particular interest are conditions that lead to 2nd order phase transitions to lattices containing optically (antiferroelectrically) ordered chromophore. The results of this work are discussed in the context of explanations in the attempted preparation of device quality materials.

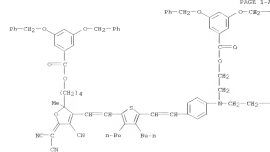
but can be effectively avoided using their derived phase diagrams.

31 321164-47-0
KL: PEP (Physical, engineering or chemical process); PAP (Properties);
PROC (Process)
(realization of polymeric electro-optic modulators with less than one
volt drive voltage requirement)

```

      volt drive voltage requirement,
720  31164-47-Q  CAPLOS
C85  Benzoic acid, 3,3-bis[phenylmethoxy]-,
      [4-(2-[5-[2-(2-[3,5-bis(phenylmethoxy)benzoyl]oxy)butyl]-4-cyano-5-
      (diacyanometethylene)-2,5-dihydro-2-methyl-3-furanyl]ethenyl]-3,4-dibutyl-2-
      thienyl]ethenyl]phenyl]imino]di-2,1,1-ethanediyl ester (9CI)  ICA INDEX
NAME:

```



1600-33842 Document No. 133;24454 Optical intensity modulator based on a novel electrooptic polymer incorporating a high π -conjugated chromophore.
Lee, Sang-Shin; Galmer, Sean M.; Chrysanor, Vudis; Zhang, Hai; Steier, Joseph A.; Jha, Anand K.; Dalton, Robert B.; Hagan, David R.; Hutcheon, Harold R. [Department of Electrical Engineering-Electrostatics,
University
of Southern California, Los Angeles, CA, 90089-0483, USA]. IEEE Journal of Optoelectronics and Photonics 36(5), 517-532 (English) 2000. CODED
EJ3A7P. ISSN: 0018-9237. Publisher: Institute of Electrical and

A3 Electronics Engineers. The authors synthesized a novel electrooptic (EO) polymer based on a high $\mu\beta$ chromophore incorporating tricyanobutadiene acceptors. A crosslinked polyetherane network was also adopted to enhance its thermal stability. To find the optimum poling condition for the polymer, the influence of the elec. poling profile on optical characteristics such as EO effect, thermal stability, and damage was studied. Then a high-speed intensity modulator using the EO polymer was designed and fabricated.

The measured half-wave voltage V_{π} was 4.5 V at the wavelength of 1.31 μm . Accordingly, the achieved EO coefficient r_{33} was 325 pm/V, and the thermal stability of the poled polymer was $\pm 95^\circ$. Finally, the modulator was successfully operated up to 40 GHz.

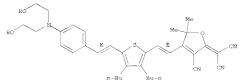
17 247088-15-9P
RL: DEV (Device component use); PNP (Properties); SPN (Synthetic preparation); PRP (Preparation); USES (Uses)
(optical intensity modulator based on novel electrooptic polymer incorporating high μ chromophore)

JN 247088-15-9 CAPLUS
 CN Propanedinitrile, 4-[(1E)-2-[5-[(1E)-2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5H)-furanlidene]-, polymer with 1,3-diisocyanatoethylobenzene (SCI) (CA INDEX NAME)



CH 2
C32 247088-12-6
C36 342 34 03 5

Double bond geometry as shown.

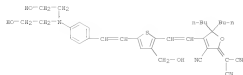


CN	2
CRN	26471-62-5
CNE	C9 H6 N2 O

165 ABSTRACT 42 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
10001708420 Document No. 1321335227 Bandrumer functionalized BLO
chromophores, Londergan, Timothy M.; Shang, Cheng; Ren, Albert; Dalton,
Larry; Department of Chemistry, University of Washington, Seattle, WA,
98195, USA). Polymer Preprints (American Chemical Society, Division of
Polymer Chemistry), 41(11), 783-784 (English) 2000. CODEN:
ACFPAY. 125H: 0032-3934. Publisher: American Chemical Society, Division

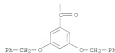
AB: We have synthesized a Ph benzyl ether dendrimer containing an FTC chromophore in the core. This serves to isolate the nonlinear optical (NLO) active FTC mol. from neighboring chromophores, thereby decreasing the intermol. electrostatic interactions. The structure of the FTC-dendrimer was confirmed by ¹H NMR, ¹³C NMR, and MALDI-TOF mass spectrometry.

IT	268548-55-6	Reaction of 2,2,2-trifluoroethyl isocyanate with furan-2-yl isocyanate
	Re: NCT (Reactant); RCT (Reactant or reagent)	(in preparation of dendrimer-functionalized
		furanyl-thienyl-cyano-containing
		nonlinear optical chromophores)
PI	268548-55-4	CPAQUE
CI	Proposed nitrile, 2-[4-[2-[5-[2-[4-[bis(2- diisobutylamino)ethynyl]ethenyl]ethenyl]-3-(hydroxymethyl)-2-thienyl]ethenyl]- 5,5-dihydroxy-1,3-phenyl]-2(1H)-furylidene]- (CA INDEX NAME)	



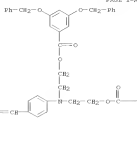
EV	268548-57-5P	NA: SYN (Synthetic preparation); PREP (Preparation) (preparation and characterization of
321	268548-57-5 CAPLUS	benzoic acid, 3,3-bis (phenylethoxy)-,
[14-2]	[4-[[[3,3-bis (phenylethoxy)benzoyl]oxy]methyl]-5-[2-[2,2-dibutyl-4-oxo-5-(disocyanophenyl)ene]-2,5-diylpro-3-furyl]ethenyl]-2-ethynyl]ethenyl]phenyl]imino]di-2,3-ethanediyl ester (9C1)	CA INDEX

165 ANSWER 42 OF 53 CAPLUS COPYRIGHT 2010 ACS on BTN (Continued)



165 ANSWER 42 OF 53 CAPLUS COPYRIGHT 2010 ACS on 5TH (Continued)

PAGE 1-3



SPACE 3-5



145 ANSWER 43 OF 55 CAPLUS COPYRIGHT 2010 ACS on STN
2000133769 Document No. 132:1676750 New class of high hyperpolarizability
organic chromophores and methods for synthesizing the same. Dalton,
Larr:
R. J. Fetterman, Harold R. Wang, Fangy Steier, William Harper, Aaron W.,
Rep. Albert G., Michael Joseph Pacific Wave Industries, Inc., USA.

Int. Appl. WO 2000009613 A2 20000224, 45 pp. DESIGNATED STATES:
AU, JP, BR, AR, BE, CH, CY, DE, DK, ES, FI, FR, GB, GR, IE, IT, LU,
MC, NL, PT, SE. (English). CODES: P16X2D. APPLICATION: WO 1999-081624

AB The chromophores incorporate at least one organic substituent and are formed in consideration of mol. shapes and a spatial anisotropy of intermol. interactions. The chromophores are processed into hardened material lattices to lock-in polarizing induced elec.-optic activity. Preferred

substituents are alkyl, aryl, and isopropenyl groups. A composite including the organic chromophore, in a preferred embodiment, includes a polymer, such as a poly(ethylene methacrylate), polyamide, polyaniline acid, polystyrene, polycarbonate, or polysulfone, into the optically transparent matrix in a manner electro-optic polymers suitable for electro-optic modulators and other devices such as optical switches. These modulators can be configured to work at high frequencies and in arrays for applications in communications and research communities. In addition,

They can be implemented in series and parallel combinations in phased array radar, signal processing and sensor technol. applications.

17 247088-14-8
RL: PFP (Properties); TM (Technical or engineered material use); USE
(Uses)
(chromophores; new class of high hyperpolarizability organic

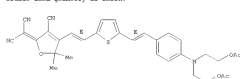
chromophores
and process for synthesizing same)

247088-14-8 CAPLUS

CH Prepared dinitrile, 2-[4-[(1E)-2-[3-[(1E)-2-[4-[bis[2-(acetoxy)ethyl]amino]phenyl]ethenyl]-2-thienyl]ethenyl]-3-cyano-5,5-

dimethyl-2-(5H)-furylidene)- (CA INDEX NAME)

Double bond geometry as shown



17 247088-13-7
RL: PEP (Properties); TEM (Technical or engineered material use); USES
(Uses)

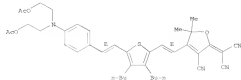
(chromophores; reaction in manufacture of new class of high hyperpolarizability organic chromophores for use in electrooptical devices)

247088-13-7 CAPLDB

145 ANIMEL 43 OF 53 CAPLOS COPYRIGHT 2010 ACS on STN (Continued)

CN Propazadinitrile, 2-[4-[(1E)-2-[3-[(1E)-2-[4-[bis[2-(acetoxy)ethyl]amino]phenyl]ethenyl]-2,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2(5E)-furan-2-ylidene]- (CA INDEX NAME)

Double bond correctly as shown.



3T 247098-12-6P

KL: IMF (Industrial manufacture); NCT (Reactant); PREP (Preparation);

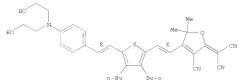
FACT (continued on page 10)

(intermediate; reaction in manufacture of new class of high hyperpolarizability organic chromophores for use in electrooptical devices)

247000-12-6

CN Propazadinitrile, 2-[4-[(1E)-2-[5-[(1E)-2-[4-bis(2-

Double bond geometry as shown.



165 ANSWER 45 OF 53 CASPU8 COPYRIGHT 2010 ACS on STM

13998-624487 Document No. 13150892 Theoretical investigation on the first hyperpolarizability of push-pull polymers containing non-aromatic cyclic olefins. Zhu, P.; Wang, P.; Ye, C. Institute of Chemistry, Organic Solids Laboratory, Center for Molecular Science, Chinese Academy of Sciences, Beijing, Peop. Rep. China). Chemical Physics Letters, 1993, 213, 41.

306-314 (English) 1999. CODEN: CHPLAC. ISSN: 0009-2614.
 Publisher: Elsevier Science B.V..

A2 Novel push-pull polyenes containing non-aromatic cyclic olefins, such as cyclopentadiene, cyclopropene and cycloheptatriene, have been

for application of nonlinear optical (NLO) materials. Their dot product $\mu_{\text{H}}^{\text{H}}$ of first hyperpolarizability $[\text{D}]$ and dipole moment $[\text{D}]$ are calculated by employing AM1/finite field and EEMD/S approaches. Among them, the largest value is as high as 4.1-10.45 a.u. The origin of such high $\mu_{\text{H}}^{\text{H}}$ was analyzed based on the two-level model.

Non-aromatic
through

gaining/losing an electron in their charge transfer states.

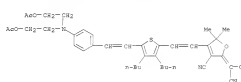
IT 233331-38-7

RL: PIP (Properties)

(theor. investigation on the first hyperpolarizability of push-pull
polyenes containing non-aromatic cyclic olefins that become aromatic

charge-tra

XN 213131-99-7 CASUS
 CN Propazadinitrile, 2-[4-[2-[5-[2-[4-[bis[2-(
 (acetoxy)ethyl]amino]phenyl]ethenyl]-3,4-dibutyl-2-thienyl]ethenyl]-3-



145 ANSWER 44 OF 53 CAPLOS COPYRIGHT 2010 ACS on STM

2000:24450 Document No. 132:158653 DC biased electro-optic polymer

modulators with low half-wave voltage and high thermal stability. Chen, Antao; Chuprov, Vadim S.; Huang, Hui; Garnett, Scott; Lee, Sang-Shing; Reiter, Alan H.; Chen, Jieqiong; Wang, Gang; Chen, Jieqiong; Ma, Wenqian; Yu, Younsu; Mao, Xue S. H.; Harper, Aaron M.; Balton, Larry R.; Pettersen, Harold R. (Department of Electrical, University of Southern California, Los Angeles, CA, 90089-0483, USA). Optical Engineering (Bellingham, Washington), 38(12), 2000-0286 (English) 1999. OOBIN: OPGAR.
 ISSN 0893-7288. Publisher: SPIE-The International Society for Optical Engineering.

25 The full potential of 2nd-order nonlinear polymers can be used in electrooptic polymer modulators with a d.c. biased operation scheme to greatly reduce the half-wave voltage. This technique makes use of the total achievable electrooptic coefficient, which can be more than three

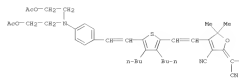
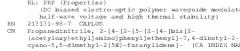
times the value that was used by the conventional devices of poled electrooptic polymer. As the result of the d.c. bias and with high- μf capacitors, a low half-wave voltage of 2.5 V was achieved with

2-cm-long

Birefringent waveguide modulators at the wavelength of 1.3 μm . 8

of . . .
ele . . .

requirement because the polymer does not need to be poled prior to high-temperature steps.



L65 ANSWER 46 OF 53 CAPLUS COPYRIGHT 2010 ACS on STM

1999;451775 Document No. 131:3000126 Polymer electro-optic devices for integrated optics. Steier, William M.; Chen, Antao; Lee, Shang-Shin; Garner, Sean; Zhang, Hua; Chuyanov, Vadim; Dalton, Larry R.; Wang, Fang; Ren, Albert S.; Zhang, Cheng; Todorova, Galina; Harper, Aaron; Fetterman, Harold R.; Chen, Datong; Udupa, Anand; Bhattacharya, Raipayan; Tsap, Boris

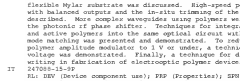
(Department of Electrical Engineering, University of Southern California, Los Angeles, CA, 90089-0483, USA). Chemical Physics, 245 (1-3), 487-506 (English) 1999. CODEN: CHUPHC. ISSN: 0301-0104. Publisher: Elsevier Science B.V.

AB A re
in

optical waveguides which bring them much closer to system ready. The processing of a new thermosetting FTC polymer and its incorporation into

high

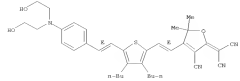
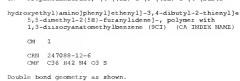
design and fabrication of 100 GHz modulators and the



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preparation); PREP (Preparation); USER (User)
(recent advances in electrooptic polymers in waveguides and other
devices with integrated optics)

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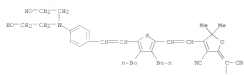
165 ANSWER 47 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)

CH 2
 CHN 24471-62-5
 CNF C9 H6 N2 O2
 OCC 2D5

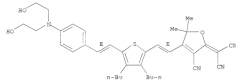


D1-Me

IT 24748-62-7. Prepared in nitro, [4-[[5-[[2-[4-[[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2-(5H)-furylidene]-R1] RCT (Reactant); PREP (Preparation); RACT (Reactant or reagent) [recent advances in electrooptic polymers in waveguides and other devices with integrated optics]
 RN 24748-62-7 CAPLUS
 CN Prepared in nitro, 2-[[4-[[2-[[5-[[2-[4-[[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2-(5H)-furylidene]-R1] INDEX NAME]



165 ANSWER 47 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)



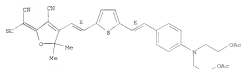
CH 2
 CHN 24471-62-5
 CNF C9 H6 N2 O2
 OCC 2D5



D1-Me

IT 24708-14-3
 R1: PREP (Properties)
 [Preparation and characterization of electrooptic chromophores for fabrication of electrooptic devices]
 RN 24708-14-3 CAPLUS
 CN Prepared in nitro, 2-[[4-[[1E)-2-[[5-[[1E)-2-[[4-[[bis(2-acetoxylethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]-3-cyano-3,5-dimethyl-2-(5H)-furylidene]-R1] INDEX NAME]

Double bond geometry as shown.



IT 24708-13-7P
 R1: PREP (Properties); RPN (Synthetic preparation); PREP (Preparation)
 [Preparation and characterization of electrooptic chromophores for fabrication of electrooptic devices]

165 ANSWER 47 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
 1999:451741 Document No. 131:500096 The molecular and supramolecular engineering of polymeric electro-optic materials. Robinson, R. H., Bilton, L. F., Harper, A. W., Hu, A. Y., Wang, F. J., Zhang, C., Todorova, G., Lee, H., Anlauf, J., Garner, S. J., Chen, A., Steier, W. H., Hudobert, S. J., Hynes, A. J., Lehoucq, J., Ryan, D. J., Chen, A. F. V. (Department of Chemistry, University of Washington, Seattle, WA, USA). Chemical Physics Letters 265(1-3), 35-50 (English) 1999. CODEN: CHPLCE. 125B: 0371-9104. Publisher: Elsevier Science B.V.

AB A new class of electrooptic chromophores, of which 2-dicyanophenyl-3-yno-4-[[2-[[4-[[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]-3-cyano-5,5-dimethyl-2-(5H)-furylidene]-R1] is the prototype, was prepared, characterized, and used to fabricate electrooptic devices. The mol. hyperpolarizability and thermal stability of these chromophores were exceptional. Strong intermol. electrostatic interactions inhibit the efficient poling of these.

NOTE A statistical mech. theo. treatment is used to quant. predict the competition of poling, intermol. electrostatic interactions, and thermal effects in defining achievable azoic order and hence anisotropic optical nonlinearity. Theory is used to predict the optimum chromophore structure and material composition (chromophore loading in a polymer matrix) for maximum electrooptic activity and min. optical loss. Problems associated with lattice hardening to lock-in poling-induced order are discussed briefly.

IT 24708-15-9P
 R1: DEV (Device component use); RPN (Synthetic preparation); PREP (Preparation); RCT (Reactant or reagent)
 [Preparation and characterization of electrooptic chromophores for fabrication of electrooptic devices]

RN 24708-15-9 CAPLUS
 CN Prepared in nitro, 4-[[1E)-2-[[5-[[1E)-2-[[4-[[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2-(5H)-furylidene]-R1] INDEX NAME]

RN 24708-15-9 CAPLUS
 CN Prepared in nitro, 4-[[1E)-2-[[5-[[1E)-2-[[4-[[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2-(5H)-furylidene]-R1] INDEX NAME]

RN 24708-15-9 CAPLUS
 CN Prepared in nitro, 4-[[1E)-2-[[5-[[1E)-2-[[4-[[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2-(5H)-furylidene]-R1] INDEX NAME]

RN 24708-15-9 CAPLUS
 CN Prepared in nitro, 4-[[1E)-2-[[5-[[1E)-2-[[4-[[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2-(5H)-furylidene]-R1] INDEX NAME]

RN 24708-15-9 CAPLUS
 CN Prepared in nitro, 4-[[1E)-2-[[5-[[1E)-2-[[4-[[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2-(5H)-furylidene]-R1] INDEX NAME]

RN 24708-15-9 CAPLUS
 CN Prepared in nitro, 4-[[1E)-2-[[5-[[1E)-2-[[4-[[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2-(5H)-furylidene]-R1] INDEX NAME]

RN 24708-15-9 CAPLUS
 CN Prepared in nitro, 4-[[1E)-2-[[5-[[1E)-2-[[4-[[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2-(5H)-furylidene]-R1] INDEX NAME]

RN 24708-15-9 CAPLUS
 CN Prepared in nitro, 4-[[1E)-2-[[5-[[1E)-2-[[4-[[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2-(5H)-furylidene]-R1] INDEX NAME]

RN 24708-15-9 CAPLUS
 CN Prepared in nitro, 4-[[1E)-2-[[5-[[1E)-2-[[4-[[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2-(5H)-furylidene]-R1] INDEX NAME]

RN 24708-15-9 CAPLUS
 CN Prepared in nitro, 4-[[1E)-2-[[5-[[1E)-2-[[4-[[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2-(5H)-furylidene]-R1] INDEX NAME]

RN 24708-15-9 CAPLUS
 CN Prepared in nitro, 4-[[1E)-2-[[5-[[1E)-2-[[4-[[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2-(5H)-furylidene]-R1] INDEX NAME]

RN 24708-15-9 CAPLUS
 CN Prepared in nitro, 4-[[1E)-2-[[5-[[1E)-2-[[4-[[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2-(5H)-furylidene]-R1] INDEX NAME]

RN 24708-15-9 CAPLUS
 CN Prepared in nitro, 4-[[1E)-2-[[5-[[1E)-2-[[4-[[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2-(5H)-furylidene]-R1] INDEX NAME]

RN 24708-15-9 CAPLUS
 CN Prepared in nitro, 4-[[1E)-2-[[5-[[1E)-2-[[4-[[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2-(5H)-furylidene]-R1] INDEX NAME]

RN 24708-15-9 CAPLUS
 CN Prepared in nitro, 4-[[1E)-2-[[5-[[1E)-2-[[4-[[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2-(5H)-furylidene]-R1] INDEX NAME]

RN 24708-15-9 CAPLUS
 CN Prepared in nitro, 4-[[1E)-2-[[5-[[1E)-2-[[4-[[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2-(5H)-furylidene]-R1] INDEX NAME]

RN 24708-15-9 CAPLUS
 CN Prepared in nitro, 4-[[1E)-2-[[5-[[1E)-2-[[4-[[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2-(5H)-furylidene]-R1] INDEX NAME]

RN 24708-15-9 CAPLUS
 CN Prepared in nitro, 4-[[1E)-2-[[5-[[1E)-2-[[4-[[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2-(5H)-furylidene]-R1] INDEX NAME]

RN 24708-15-9 CAPLUS
 CN Prepared in nitro, 4-[[1E)-2-[[5-[[1E)-2-[[4-[[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2-(5H)-furylidene]-R1] INDEX NAME]

RN 24708-15-9 CAPLUS
 CN Prepared in nitro, 4-[[1E)-2-[[5-[[1E)-2-[[4-[[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2-(5H)-furylidene]-R1] INDEX NAME]

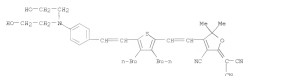
RN 24708-15-9 CAPLUS
 CN Prepared in nitro, 4-[[1E)-2-[[5-[[1E)-2-[[4-[[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2-(5H)-furylidene]-R1] INDEX NAME]

RN 24708-15-9 CAPLUS
 CN Prepared in nitro, 4-[[1E)-2-[[5-[[1E)-2-[[4-[[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2-(5H)-furylidene]-R1] INDEX NAME]

RN 24708-15-9 CAPLUS
 CN Prepared in nitro, 4-[[1E)-2-[[5-[[1E)-2-[[4-[[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2-(5H)-furylidene]-R1] INDEX NAME]

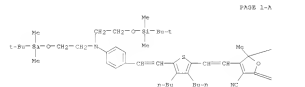
RN 24708-15-9 CAPLUS
 CN Prepared in nitro, 4-[[1E)-2-[[5-[[1E)-2-[[4-[[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5,5-dimethyl-2-(5H)-furylidene]-R1] INDEX NAME]

165 ANMER 48 OF 53 CAPLOS COPYRIGHT 2010 ACS ON STN
1999/211127 Document No. 130/35220 Epoxy thermosetting HLO material.
Chem. Mingfei; Ren, Albert S.; Wang, Judy F.; Lee, Michael S.; Dalton, Larry
F.; Zhang, Rui; Sun, Guille; Steier, William H. (Loker Hydrocarbon Institute, University of Southern California, Los Angeles, CA, 90089, USA). Polymer Preprints (American Chemical Society, Division of Polymer Chemistry), 40(1), 102 (English) 1999. CODEN: ACPAPAT. ISSN: 0012-3934.
Publisher: American Chemical Society, Division of Polymer Chemistry.
AB A high α -beta chromophore with epoxide functional groups was covalently synthesized by a Heck reaction. The chromophore was successfully incorporated into an epoxy thermosetting material. A 30% C increase in electro-optic thermal stability was observed as compared to the polyurethane analog of the same chromophore.
IT 224740-61-7P 224740-64-7P
RI MIA (Modifier or additive use); SPN (Synthetic preparation); PSEP (Preparation); CDE (Chemical)
CN (chromophore, preparation and characterization of epoxy thermosetting nonlinear optical materials)
RI 224740-62-3 CAPLOS
CN Propagandinitrile, 2-[4-[2-[5-[2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5-methyl-2-(5H)-furanylidene]- (CA INDEX NAME)



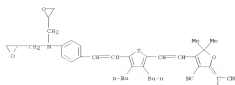
RI 224740-64-3 CAPLOS
CN Propagandinitrile, 2-[4-[2-[5-[2-[4-[bis(2-hydroxyethyl)amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5-methyl-2-(5H)-furanylidene]- (CA INDEX NAME)

165 ANMER 49 OF 53 CAPLOS COPYRIGHT 2010 ACS ON STN
1999/211128 Document No. 130/35295 A trifunctionalized high $\alpha\beta$ chromophore and its 3D polyurethane network with enhanced HLO alignment stability for electro-optic device applications. Ren, Albert S.; Chen, Mingfei; Lee, Michael S.; He, Mingqiang; Dalton, Larry R.; Zhang, Rui; Guille, Sean M.; Steier, William H. (Loker Hydrocarbon Institute, University of Southern California, Los Angeles, CA, 90089-1662, USA). Polymer Preprints (American Chemical Society, Division of Polymer Chemistry), 40(1), 102-101 (English) 1999. CODEN: ACPAPAT. ISSN: 0012-3934. Publisher: American Chemical Society, Division of Polymer Chemistry.
AB A trifunctionalized high α -beta chromophore, LTR, based on a diphenylmethylenedihydrofuran acceptor was synthesized by coupling of a hydroxyl functionalized amino donor, a di-Bu derivatized thiophene bridge,
and a hydroxyl functionalized diphenylmethylenedihydrofuran based acceptor. The chromophore was incorporated into a 3D thermosetting polyurethane network through a three hydroxyl group attachment to both ends of the chromophore, in anhydrous dimethylacetone and excess tolyleneisocyanate (TDI).
The dynamic alignment stability of the chromophore was enhanced by 25% over that of the single end attached polymer analog.
IT 224815-75-3P
RI PFP (Properties); NCT (Reactant); SPN (Synthetic preparation); PSEP (Preparation); MCT (Reactant or reagent)
CN LTR chromophore monomer, a trifunctionalized high $\alpha\beta$ chromophore and 3D polyurethane network with enhanced HLO alignment stability for electro-optical devices)
RI 224815-75-3 CAPLOS
CN Propagandinitrile, 2-[4-[2-[5-[2-[4-[bis(2-[1,1,1-trimethyl-2-(dimethylsilyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5-(4-hydroxybutyl)-5-methyl-2-(5H)-furanylidene]- (CA INDEX NAME)



PAGE 1-A

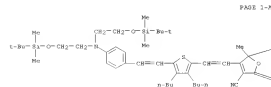
165 ANMER 48 OF 53 CAPLOS COPYRIGHT 2010 ACS ON STN (Continued)



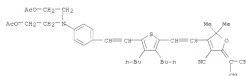
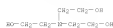
165 ANMER 49 OF 53 CAPLOS COPYRIGHT 2010 ACS ON STN (Continued)

PAGE 2-B

Chemical structure of a trifunctionalized high $\alpha\beta$ chromophore and its 3D polyurethane network with enhanced HLO alignment stability for electro-optical devices.
IT 224967-76-4P
RI PFP (Properties); SPN (Synthetic preparation); PSEP (Preparation)
CN (a trifunctionalized high $\alpha\beta$ chromophore and 3D polyurethane network with enhanced HLO alignment stability for electro-optical devices)
RI 224967-76-4 CAPLOS
CN Propagandinitrile, [4-[2-[5-[2-[4-[bis(2-[1,1,1-trimethyl-2-(dimethylsilyl)dimethylsilyl]oxy]ethyl]amino]phenyl]ethenyl]-3,4-dimethyl-2-thienyl]ethenyl]-3-cyano-5-(4-hydroxybutyl)-5-methyl-2-(5H)-furanylidene]-, polymer with 2,4-diisocyanato-2-methylbenzene and 2,2',2''-nitrioltri[ethanol] (CTT) (CA INDEX NAME)
CN 1
CHN 224967-75-3
CHF C51 H76 N4 O4 S 812



PAGE 1-A



Spectroscopy

Applied to π -Electron Photonic Materials, Brenner, K. A.; Larsen, P. J.; Stockwell, P. F.; Dalton, L. R. (Loker Hydrocarbon Research Institute, University of Southern California, CA, 90089-1662, USA). Journal of Physical Chemistry A, 1995(14), 2249-2361 (English) 1995
CODEN: JPACRA. ISSN: 1089-5639. Publisher: American Chemical Society.

AB Degenerate four-wave mixing (DFWM) spectroscopy is modified to exploit femtosecond pulsed, phase-sensitive-detection, frequency (wavelength) agility, two-color linearly degenerate multi-wave mixing radiation, and improved signal-to-noise capabilities that can be realized through a combination of new solid state lasers, nonlinear optical components, and novel design concepts. The resulting time-resolved nonlinear optical techniques permit instantaneous optical nonlinearities, such as two-photon absorption cross sections, to be accurately measured over the spectral range from 450 to 2500 nm (and with significantly greater effort from 225 to 5000 nm). The power of the new techniques is illustrated by their application to the definition of the two-photon resonances of C₆₀ and C₇₀ as well as to the characterization of optical nonlinearities in two linear chromophores of putative utility for sensor protection and electrooptic modulation. Explicitly, these measurements provide accurate determination of both transition energies and transition moments (matrix elements connecting the two photon levels). Results are compared to those previously reported in the literature illustrating the advantages and problems associated with particular measurement techniques. All of the molecules studied exhibit two-photon absorption coefficients comparable to that of GaAs, the most studied

putative sensor protection material (based on use of electronic optical nonlinearity). Femtosecond pulse techniques are shown, in all cases, to be necessary to avoid complications arising from excited-state absorption and relaxation phenomena. The importance of phase-sensitive detection in identifying complications from overlapping transitions is illustrated.

IT

213131-98-7

RI: PDP (Properties)

Femtosecond, frequency-agile, phase-sensitive-detected, multi-wave-mixing nonlinear optical spectroscopy applied to π -electron photonic materials.

NN 213131-98-7 CAPLOS

CN

Propenadinitrile, 2-[4-[2-[5-[2-[4-[bis[2-(acetyloxy)ethylamino]phenyl]ethenyl]-3,6-dimethyl-2-thienyl]ethenyl]-3-oxapane-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)

High electro-optic coefficient from a polymer containing high β chromophores. Wang, Fang; Ren, Albert S.; He, Mingqian; Harper, Aaron

W. J.

Dalton, Larry R.; Garner, Sean M.; Zhang, Hui; Chen, Antao; Steier, William R. Department of Chemistry, Loker Hydrocarbon Research Institute, University of Southern California, Los Angeles, CA, 90089-1661, USA). Polymeric Materials Science and Engineering, 79, 42-43 (English) 1998. CODEN: PMSENG. ISSN: 0743-0515. Publisher: American Chemical Society.

AB The electro-optical coefficient (r_{33}) values of PBOA doped (14.6% with a new furan ring-based NLO chromophore (FPC-2AaO) are reported. FPC-2AaO has excellent solubility, high thermal stability, a relatively low chromophore

absorption maximum, and a very high r_{33} .

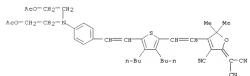
IT 213131-98-7

RI: MOA (Modifier or additive use) PDP (Properties); USIS (Uses)

NN 213131-98-7 CAPLOS

CN

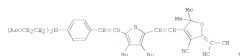
Propenadinitrile, 2-[4-[2-[5-[2-[4-[bis[2-(acetyloxy)ethylamino]phenyl]ethenyl]-3,6-dimethyl-2-thienyl]ethenyl]-3-oxapane-5,5-dimethyl-2(5H)-furanylidene]- (CA INDEX NAME)



145 ABSTRACT 53 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
1999:543224 Document No. 129:275799 Original Reference No.
129:54314,54324

145 ABSTRACT 53 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
1999:543224 Document No. 129:275799 Original Reference No.
129:54314,54324
Isolates, synthesis and characterization of a novel substituted
dicyanomethylendihydrofurane based high- β NLO chromophore and its
polymers with exceptionally high electro-optic coefficients. Wang, Fanyu
Sen, Albert A.; Ma, Mingyuan; Lee, Michael S.; Harper, Aaron W.; Dalton,
Larry P.; Zhang, Ray; Garner, Sean M.; Chen, Antony; Freiler, William B.
Isolates Pyrocarbonization Treat. and Imp. Chem., Univ. Southern California, Los
Angeles, CA, 90089-1042, USA. Polymer Preprints (American Chemical
Society, Division of Polymer Chemistry), 39(2), 1065-1066 (English)
1998. CD2426. ACPKAT. ISSN 0252-2324. Publisher: American
Chemical Society, Division of Polymer Chemistry

GI



A2 A second order nonlinear optical chromophore having the structure I and
exhibiting high mol. nonlinearity, high thermal stability, and low
optical
absorption was prepared and characterized. Excellent optical quality
film

were obtained when I was co-dissolved in 1,1-dichloroethane with poly(4-
methacrylate) (PMMA) and spin-coat onto TCO-coated glass substrate. An
electrooptic coefficient of 56.9 pm/V at 1.06 μ m was achieved with a
loading

d. of 16.5 weight %. The film absorption maximum at 610 nm and the
preparation optical loss was found to be 0.75 dB/cm using the "transmission
technique". An observed attenuation of the electrooptic coefficient was
predicted

by the extended London theory when the mol. shape was taken into account.
Covalent attachment of I to a crosslinked polyurethane network resulted

in
a maximum electrooptic coefficient of 42 pm/V at 1.06 μ m with a loading
of 15
weight %. The decrease of the electrooptic coefficient of the
polyurethanes

compared to those of the PMMA composites was significant and attributed
to
the lower polarizability of the covalently attached system where the
chromophores have less freedom than in the case of doped systems. Bias
polar modulators and high-speed electrooptic modulators were fabricated
using the materials.

17 213131-80-7b, reaction products with polyurethanes

RI FFP (Properties); FFP (Synthetic preparation); FFP (Preparation)

(design, synthesis and characterization of substituted
dicyanomethylendihydrofurane-based high- β nonlinear optical

145 ABSTRACT 53 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN
1995:752764 Document No. 124:63320 Original Reference No. 124:1805a,1806a
Synthesis of substituted dicyanomethylendihydrofurans. Melikian, Gagik
Kevorkian, Francis P.; Alexandre, Christian; Laboratoire de Synthèse
Organique, Faculté des Sciences, Le Mans, 72017, Fr.). Synthetic
Communications, 25(19), 1049-52 (English) 1995. CD266. STDAV.
ISSN 0253-7912. OTHER SOURCES: CASABACT 124(453). Publisher: Dekker.

A2 A simple and efficient method for the preparation of the title compds. is
described from α -ketols and malononitrile in the presence of sodium
alkylate at room temperature. These compds. lead to unsat. derivs. by
condensation with aldehydes. For example, condensation reaction of
prepanedinitrile and 3-hydroxy-3-methyl-2-butanone gave

[3-cyano-2,5-dihydro-4,5,5-trimethyl-2-furanylidene]prepanedinitrile.

17 21042-34-3F

RI FFP (Synthetic preparation); FFP (Preparation)

(preparation of dicyanomethylendihydrofurans from hydroxy ketones and
prepanedinitrile)

RI 21042-34-3 CAPLUS

CH Prepanedinitrile, 2-[2-cyano-4-[2-(2-furyl)ethyl]-5,5-dimethyl-2(1H)-
furyl]idene]. (CA INDEX NAME)



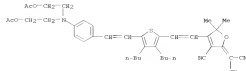
145 ABSTRACT 53 OF 53 CAPLUS COPYRIGHT 2010 ACS on STN (Continued)
chromophore and chromophore doped and modified polymers with
exceptionally high electrooptic coeff.)

RI

CH

Prepanedinitrile, 2-[4-[2-[5-[2-[4-[bis[2-
(acetyl)oxyethyl]amino]phenyl]ethyl]-3,4-dibutyl-2-thienyl]ethyl]-3-
cyano-5,5-dimethyl-2(1H)-furyl]idene]. (CA INDEX NAME)

AC



RI FFP (Properties); FFP (Synthetic preparation); FFP (Preparation)
(design, synthesis and characterization of substituted
dicyanomethylendihydrofurane-based high- β nonlinear optical
chromophore and chromophore doped and modified polymers with
exceptionally high electrooptic coeff.)

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